21
7-28-86

FARMINGTON DEMONSTRATION PROJECT

PROJECT MANAGEMENT PLAN

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JULY 1986

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EXECUTIVE SUMMARY FOR THE FARMINGTON DEMONSTRATION PROJECT PLAN

In March, the Bureau made a series of decisions with the support and concurrence of the field (sub group) committee concerning the integration of records (ALMRS), resources (GIS), and coordinate data into a Land Information System (LIS). Specifically, the Farmington Resource Area was chosen to participate in a live demonstration of an LIS in a field office.

From this initial idea, New Mexico and the Service Center have produced a draft project plan. This plan identifies the goals, objectives, major tasks, and subtasks necessary to evaluate and complete the project. The objectives of the Farmington Demonstration are:

- Define the strategy for the organization of unintegrated existing manual and automated record, resource, and coordinate data into a format for automation.
- Demonstrate in a field office environment the integration of records, resources, and coordinates using existing data bases, hardware, and software, i.e., MOSS/GIS. Evaluate software tradeoffs and B/C comparisons of software alternatives..
- Demonstrate the integration of records, resources, and coordinates using developmental software and new hardware, i.e., other GIS and DBM Systems. Evaluate software tradeoffs and B/C comparisons of software alternatives.
- Define functional and system requirements for interim LIS.
- Define B/C "tradeoffs" between use of existing capabilities vs. developing capabilities.
- Clarify and provide additional functional and system requirements for an LIS and produce a written summary of results to integrate into the BLM Modernization RFP.

From these objectives, eight major tasks were identified, including:

(1) manage the project
(2) define user requirements
(3) construct the data base
(4) implement the required capabilities
(5) demonstrate automation
(6) transfer results to the BLM Modernization Study
(7) demonstrate coordinated data transfer with USGS
(8) training

In the draft plan, the steps required to complete these tasks are portrayed to two additional levels of detail. Certain elements (the shaded blocks in the draft plan) are being worked on or alreaddy completed.

This detailed planning effort has demonstrated the project is considerably more complicated and time consuming than many people originally thought. In fact, we have yet to attach firm dates and responsibilities to each sub-task, pending review and discussion of our overall approach with Field Committee members. Dates and responsibilities will also be affected as additional specifications and resource requirements estimates are completed. The plan is intended to be dynamic and changeable. The FDP is an applied test effort and, as such, is meant to answer questions about automation in the Bureau.

However, despite the complexity of the project and the substantial resource commitment it represents, we believe the project is still an essential, high-payoff investment. To succeed, the project will require the following:

(1) A significant investment of the New Mexico and DSC support resources, some of which may impact previous project plans and resource allocations.

(2) A strong, full-time GS-12/13 project manager and a system administrator to complete the detailed planning and to coordinate the project in New Mexico, preferably in Farmington.

We are asking for review, discussion, and comment on these issues and the draft project plan documentation prior to proceeding further.

GOALS FOR FARMINGTON DEMONSTRATION

A. Demonstrate the feasibility of developing an interim Land Information System (LIS) for Bureauwide application, demonstrating the relative costs and benefits of alternate delivery systems (i.e. hardware and software) to meet identified user needs.

- Costs
- Benefits
- Timing of modernization
- Technical problems

B. Further clarify functional and system requirements of an LIS and include results in BLM's modernization (RFP).

- Hardware capabilities
- Software capabilities
- Related capabilities

C. Determine if developmental software offers substantial benefits over the existing software.

1. For records application only
   - Compare performance of existing systems to developmental systems.
   - Does the difference represent a substantial difference of savings? How long will it take to pay off?

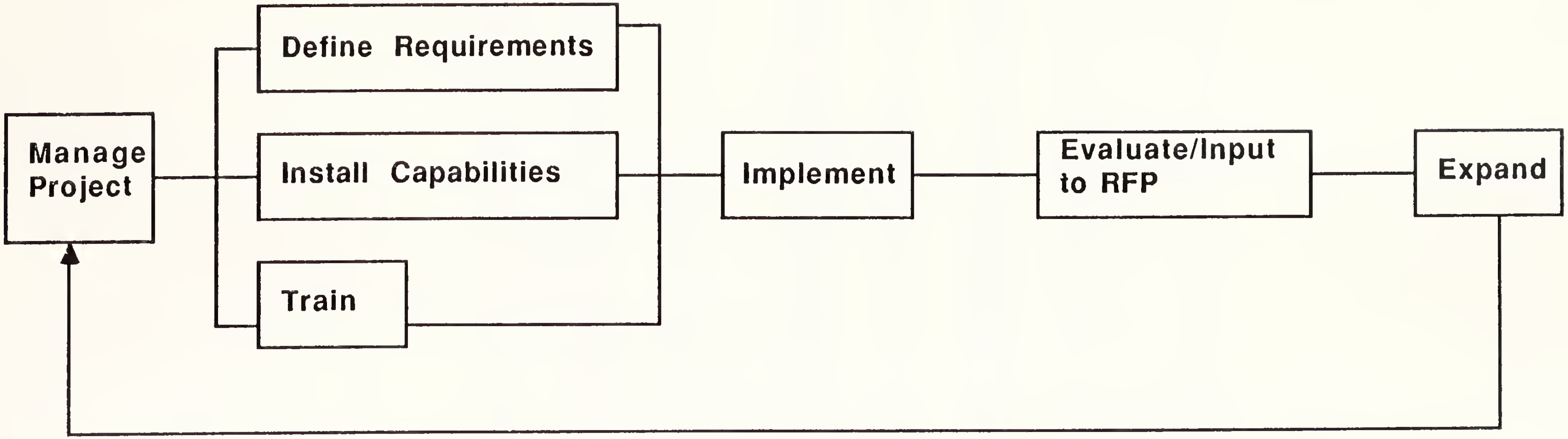
2. For LIS Applications
   - Compare performance of existing systems to developmental systems
   - Does the difference represent a substantial difference of savings? How long will it take to pay off?

D. Determine BLM coordinate requirements and test different geographic coordinate capabilities for meeting BLM coordinate requirements.

OBJECTIVES OF THE FARMINGTON DEMONSTRATION PROJECT

NARRATIVE STATEMENT	GOAL ASSOCIATION
OBJECTIVE 1 Define the stategy for the organization of unintegrated existing manual and automated record, resource, and coordinate data into a format for automation.	A, B
OBJECTIVE 2 Demonstrate in a field office enfironment the integration of records, resources, and coordinates using existing data bases, hardware, and software.	A, C, D
OBJECTIVE 4 Define functional and system requirements for interim LIS.	A
OBJECTIVE 5 Define B/C "tradeoffs" between use of existing capabilities vs. developing capabilities, including specific evaluation of software alternatives.	A, C
OBJECTIVE 6 Further clarify functional and system requirements for a "future system" LIS and produce a written summary of results to integrate into the BLM Modernization RFP.	B

Farmington Planning Sequence



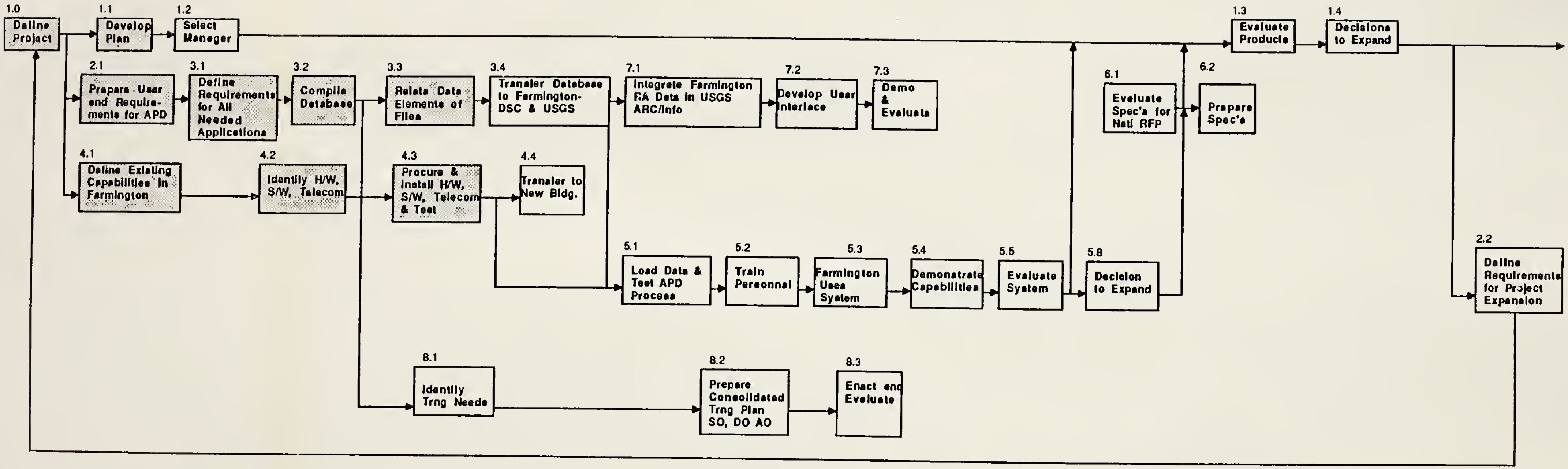
djr (Farm Summary (Farm)) 7/20/86

NSTRATION

N/COSTS								
FY87		FY88		FY89		FY90		
n	Cost of * Decision	Decision Point	Cost of * Decision	Decision Point	Cost of * Decision	Decision\ Point	Cost of * Decision
	10						
	10						
	100						
	200						
	200						
	200						
		X					
		X	1,120				
		X	250				
				X	20,000		
						X	
	350	X	350				
	350 - 1,000		350 - 1,370		20,000		

djr (Decision Options Farm.))5/18/86

FARMINGTON TASKS


1.0 Define Project
1.1 Develop Plan
1.2 Select Manager
1.3 Evaluate Products
1.4 Decisions to Expand
2.1 Prepare User and Requirements for APD
3.1 Define Requirements for All Needed Applications
3.2 Compile Database
3.3 Relate Data Elements of Files
3.4 Transfer Database to Farmington-DSC & USGS
7.1 Integrate Farmington RA Data in USGS ARC/Info
7.2 Develop User Interface
7.3 Demo & Evaluate
6.1 Evaluate Spec's for Natl RFP
6.2 Prepare Spec's
4.1 Define Existing Capabilities in Farmington
4.2 Identify H/W, S/W, Telecom
4.3 Procure & Install H/W, S/W, Telecom & Test
4.4 Transfer to New Bldg.
5.1 Load Data & Test APD Process
5.2 Train Personnel
5.3 Farmington Uses System
5.4 Demonstrate Capabilities
5.5 Evaluate System
5.8 Decision to Expand
2.2 Define Requirements for Project Expansion
8.1 Identify Trng Needs
8.2 Prepare Consolidated Trng Plan SO, DO AO
8.3 Enact and Evaluate

1.0 Project Mgmt
- 1.0 Define Project
- 1.1 Develop Plan
- 1.2 Select Manager
- 1.3 Evaluate Products
- 1.4 Decisions to Expand

2.0 User Reqmt's
- 2.1 Prepare User, Functional Requirements for APD
- 2.2 Define Requirements for Project Expansion

3.0 DB Cons't
- 3.1 Define Requirements for All
- 3.2 Compile Database
- 3.3 Relate Data Elements of Files
- 3.4 Transfer Database to Farmington - DSC + USGS

▨ In Progress or Completed

4.0 Implement Cap.
- 4.1 Define Existing Capabilities in Farmington
- 4.2 Identify H/W, S/W, Telecom
- 4.3 Procure & Install H/W, S/W, Telecom & Test
- 4.4 Transfer to New Bldg.

5.0 Demo Auto (LIS)
- 5.1 Load Data & Test APD Process
- 5.2 Train Personnel
- 5.3 Farmington Uses System
- 5.4 Demonstrate Capabilities
- 5.5 Evaluate System
  - 5.5.1 Present
  - 5.5.2 Developmental
- 5.6 Decision to Expand
- 5.7 Decision to Expand

6.0 Transfer to RFP
- 8.1 Evaluate Spec's for Natl RFP
- 8.2 Prepare Spec's

7.0 USGS Demo
- 7.1 Integrate Farmington RA Data in USGS ARC/Info
- 7.2 Develop User Interface
- 7.3 Demonstrate and Evaluate

8.0 Trng
- 8.1 Identify Training Needs
- 8.2 Prepare Consolidated Training Plan SO, DO, AO
- 8.3 Enact and Evaluate

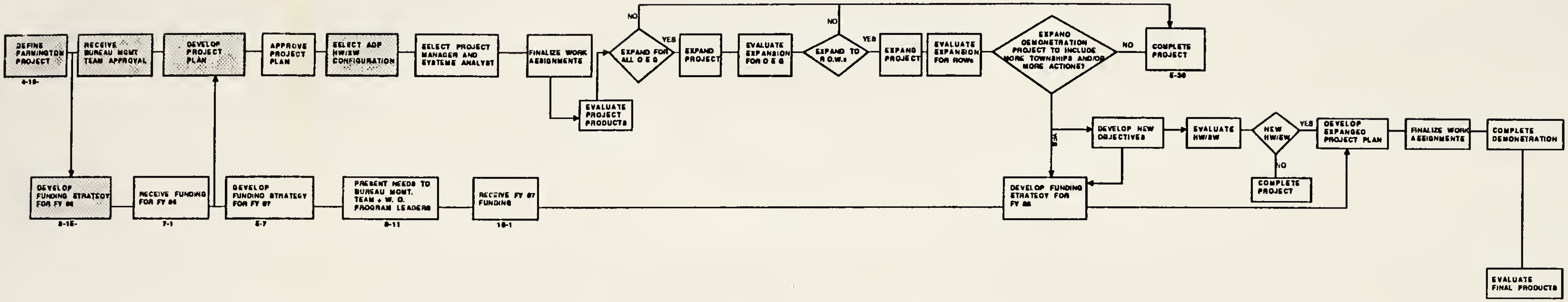
High Level

(1.0) Manage
(2.0) Define Requirements
(4.0) Install Capabilities
(8.0) Train
(4.0)(5.0) Implement
(1.0)(6.0) Evaluate
(1.0) Expand

dy (Farm. Tasks (Farm.)) 7/20/86

FARMINGTON DEMONSTRATION PROJECT

PROJECT MANAGEMENT

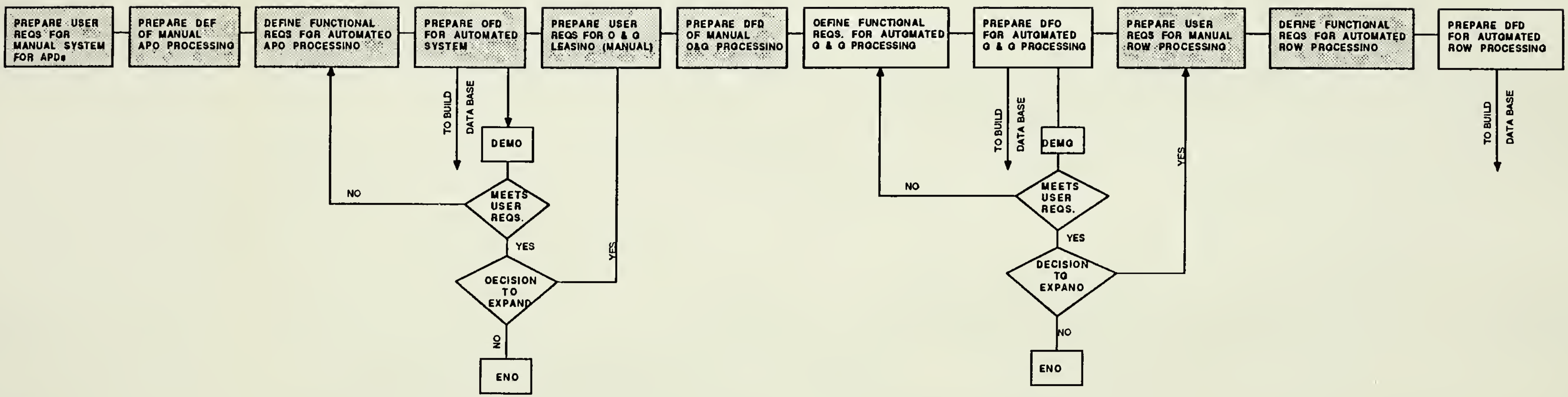

DEFINE FARMINGTON PROJECT
4-19-
RECEIVE BUREAU MGMT TEAM APPROVAL
DEVELOP PROJECT PLAN
APPROVE PROJECT PLAN
SELECT ADP HW/SW CONFIGURATION
SELECT PROJECT MANAGER AND SYSTEMS ANALYST
FINALIZE WORK ASSIGNMENTS
EVALUATE PROJECT PRODUCTS
NO
EXPAND FOR ALL O S G
YES
EXPAND PROJECT
EVALUATE EXPANSION FOR O S G
NO
EXPAND TO R.O.W.s
YES
EXPAND PROJECT
EVALUATE EXPANSION FOR ROWs
EXPAND DEMONSTRATION PROJECT TO INCLUDE MORE TOWNSHIPS AND/OR MORE ACTIONS?
NO
COMPLETE PROJECT
5-30
YES
DEVELOP NEW OBJECTIVES
EVALUATE HW/SW
NEW HW/SW
YES
NO
COMPLETE PROJECT
DEVELOP EXPANDED PROJECT PLAN
FINALIZE WORK ASSIGNMENTS
COMPLETE DEMONSTRATION
EVALUATE FINAL PRODUCTS
DEVELOP FUNDING STRATEGY FOR FY 86
8-15-
RECEIVE FUNDING FOR FY 86
7-1
DEVELOP FUNDING STRATEGY FOR FY 87
5-7
PRESENT NEEDS TO BUREAU MGMT. TEAM + W. O. PROGRAM LEADERS
8-11
RECEIVE FY 87 FUNDING
10-1
DEVELOP FUNDING STRATEGY FOR FY 88

DEMONSTRATE MANAGERIAL PLANNING.

▨ IN PROGRESS OR COMPLETED

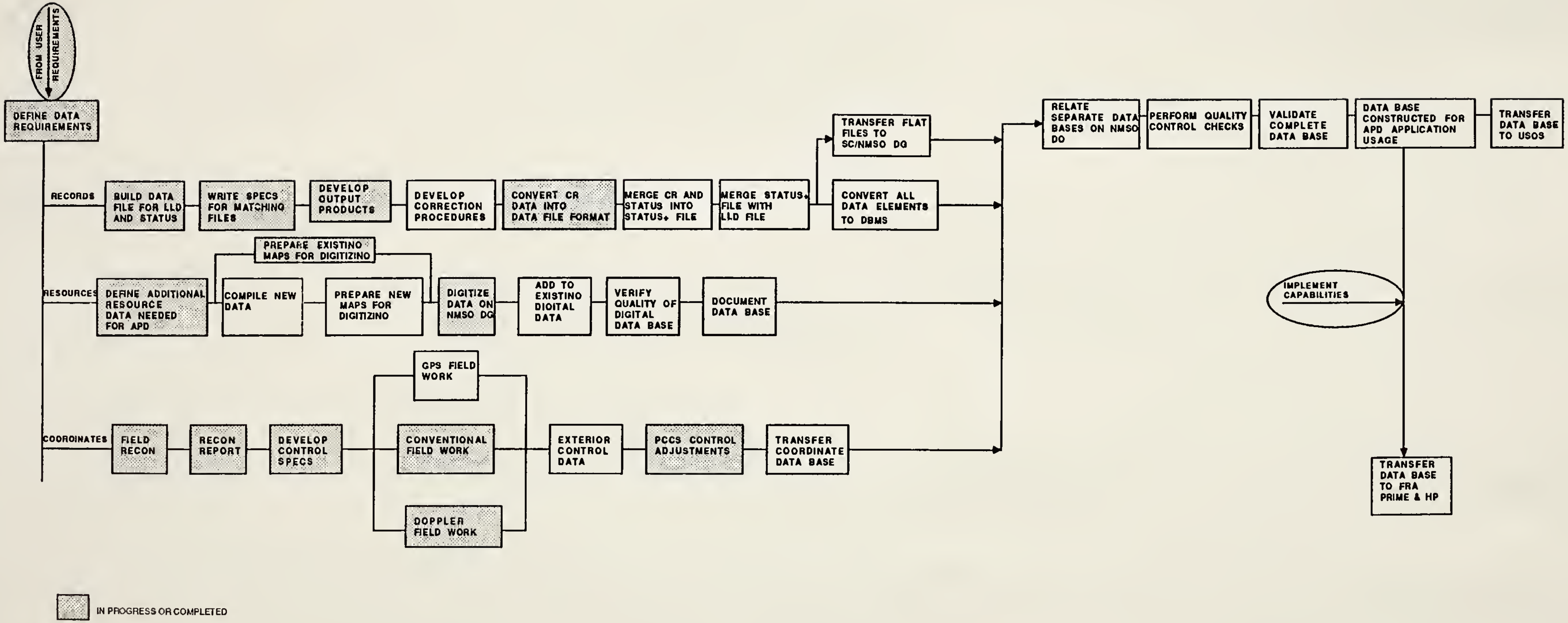
PROJ MGMT (ma) 7/2/86

USER REQUIREMENTS


PREPARE USER REQS FOR MANUAL SYSTEM FOR APDs
PREPARE DEF OF MANUAL APD PROCESSING
DEFINE FUNCTIONAL REQS FOR AUTOMATED APD PROCESSING
PREPARE DFD FOR AUTOMATED SYSTEM
PREPARE USER REQS FOR O & G LEASING (MANUAL)
PREPARE DFD OF MANUAL O&G PROCESSING
DEFINE FUNCTIONAL REQS. FOR AUTOMATED O & G PROCESSING
PREPARE DFD FOR AUTOMATED O & G PROCESSING
PREPARE USER REQS FOR MANUAL ROW PROCESSING
DEFINE FUNCTIONAL REQS FOR AUTOMATED ROW PROCESSING
PREPARE DFD FOR AUTOMATED ROW PROCESSING
TO BUILD DATA BASE
DEMO
MEETS USER REQS.
NO
YES
DECISION TO EXPAND
NO
END
YES
TO BUILD DATA BASE
DEMO
MEETS USER REQS.
NO
YES
DECISION TO EXPAND
NO
END
YES
TO BUILD DATA BASE

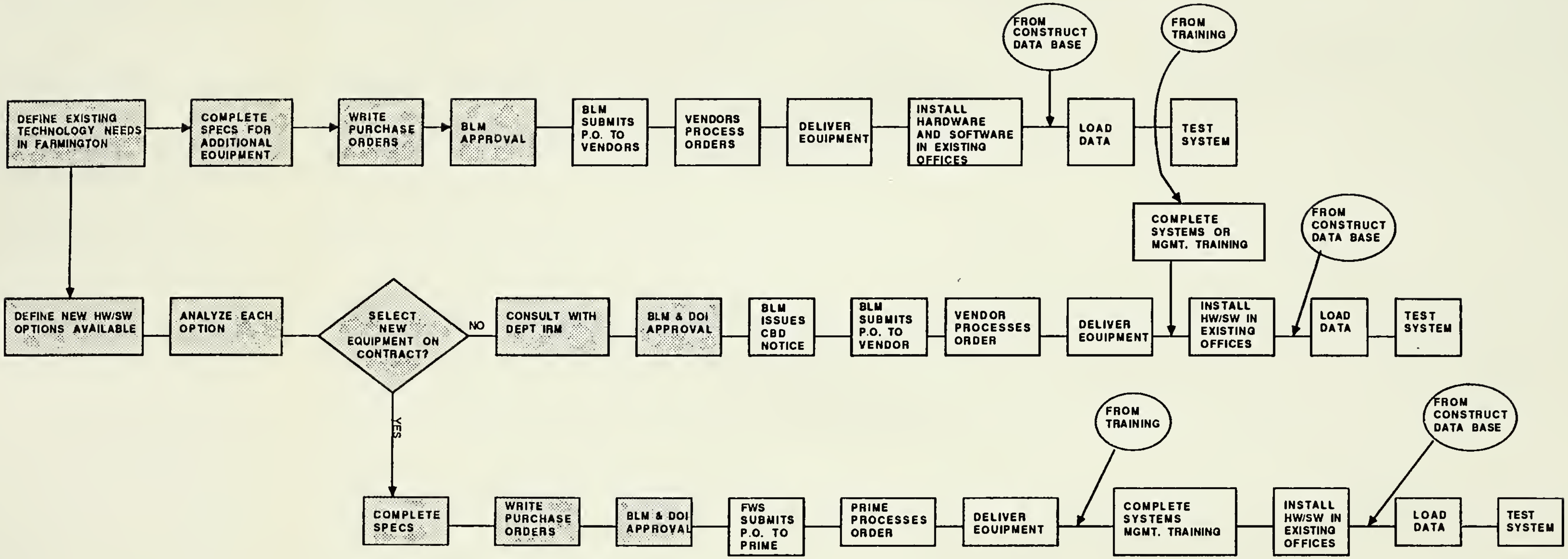
▨ IN PROGESS OR COMPLETED

DATA BASE CONSTRUCTION


FROM USER REQUIREMENTS
DEFINE DATA REQUIREMENTS
RECORDS
BUILD DATA FILE FOR LLD AND STATUS
WRITE SPECS FOR MATCHING FILES
DEVELOP OUTPUT PRODUCTS
DEVELOP CORRECTION PROCEDURES
CONVERT CR DATA INTO DATA FILE FORMAT
MERGE CR AND STATUS INTO STATUS+ FILE
MERGE STATUS+ FILE WITH LLD FILE
TRANSFER FLAT FILES TO SC/NMSO DG
CONVERT ALL DATA ELEMENTS TO DBMS
RESOURCES
DEFINE ADDITIONAL RESOURCE DATA NEEDED FOR APD
PREPARE EXISTING MAPS FOR DIGITIZING
COMPILE NEW DATA
PREPARE NEW MAPS FOR DIGITIZING
DIGITIZE DATA ON NMSO DG
ADD TO EXISTING DIGITAL DATA
VERIFY QUALITY OF DIGITAL DATA BASE
DOCUMENT DATA BASE
COORDINATES
FIELD RECON
RECON REPORT
DEVELOP CONTROL SPECS
GPS FIELD WORK
CONVENTIONAL FIELD WORK
DOPPLER FIELD WORK
EXTERIOR CONTROL DATA
PCCS CONTROL ADJUSTMENTS
TRANSFER COORDINATE DATA BASE
RELATE SEPARATE DATA BASES ON NMSO DG
PERFORM QUALITY CONTROL CHECKS
VALIDATE COMPLETE DATA BASE
DATA BASE CONSTRUCTED FOR APD APPLICATION USAGE
TRANSFER DATA BASE TO USOS
IMPLEMENT CAPABILITIES
TRANSFER DATA BASE TO FRA PRIME & HP
▨ IN PROGRESS OR COMPLETED

DB CONSTRUC. (lmb) 7/20/86

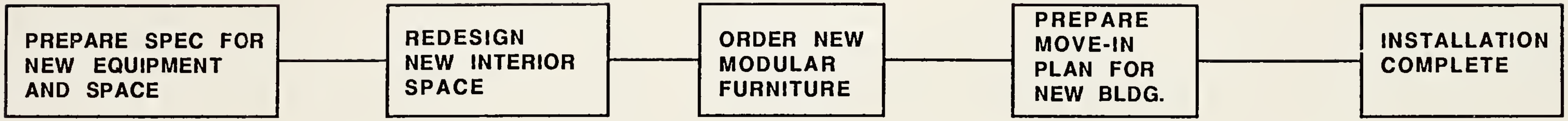
IMPLEMENT CAPABILITIES
(WITHIN EXISTING FACILITIES)



▨ IN PROGRESS OR COMPLETED

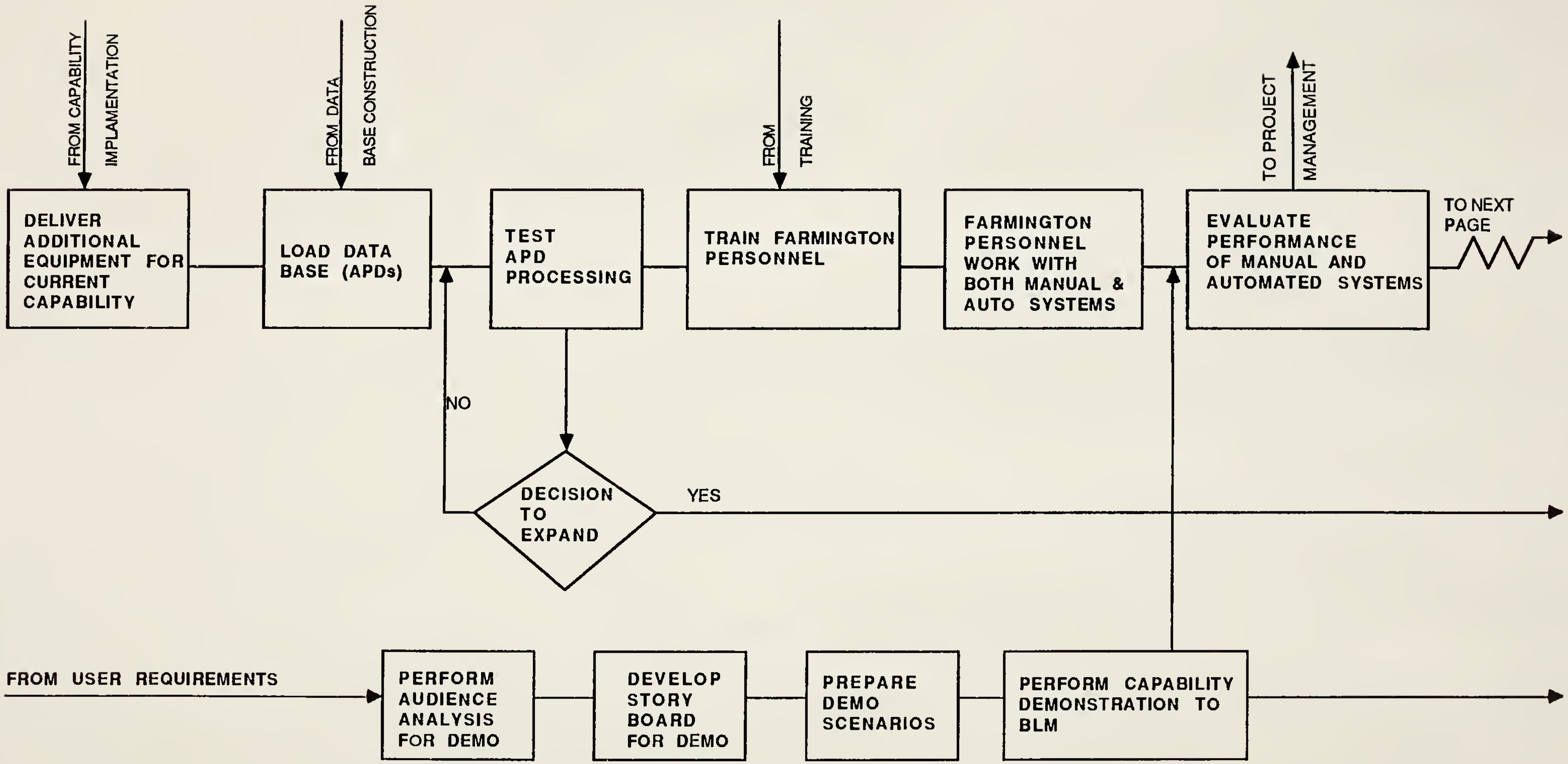
IMPLEMENT CAP (tmb) 7/20/86

IMPLEMENT CAPABILITIES
(NEW FACILITIES)


PREPARE SPEC FOR NEW EQUIPMENT AND SPACE
REDESIGN NEW INTERIOR SPACE
ORDER NEW MODULAR FURNITURE
PREPARE MOVE-IN PLAN FOR NEW BLDG.
INSTALLATION COMPLETE

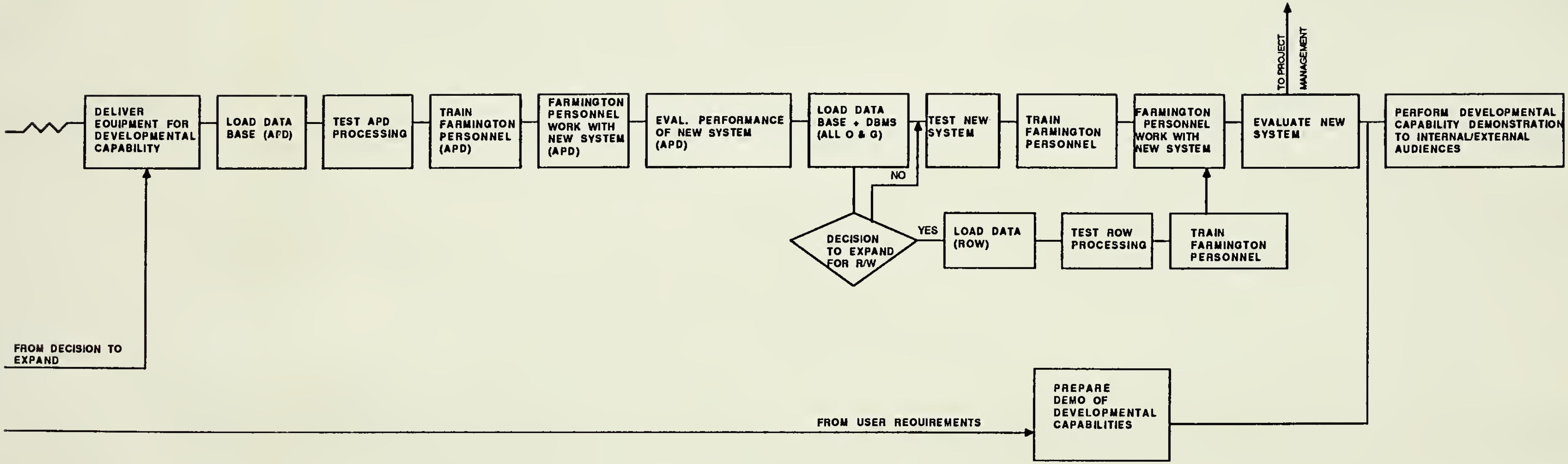
NEW FAC. (tmb) 7/20/86

DEMONSTRATION OF EXISTING SYSTEM V. L.I.S.


FROM CAPABILITY IMPLAMENTATION
FROM DATA BASE CONSTRUCTION
FROM TRAINING
TO PROJECT MANAGEMENT
DELIVER ADDITIONAL EQUIPMENT FOR CURRENT CAPABILITY
LOAD DATA BASE (APDs)
TEST APD PROCESSING
TRAIN FARMINGTON PERSONNEL
FARMINGTON PERSONNEL WORK WITH BOTH MANUAL & AUTO SYSTEMS
EVALUATE PERFORMANCE OF MANUAL AND AUTOMATED SYSTEMS
TO NEXT PAGE
NO
DECISION TO EXPAND
YES
FROM USER REQUIREMENTS
PERFORM AUDIENCE ANALYSIS FOR DEMO
DEVELOP STORY BOARD FOR DEMO
PREPARE DEMO SCENARIOS
PERFORM CAPABILITY DEMONSTRATION TO BLM

AUTO. SYS. (lmb) 7/20/86

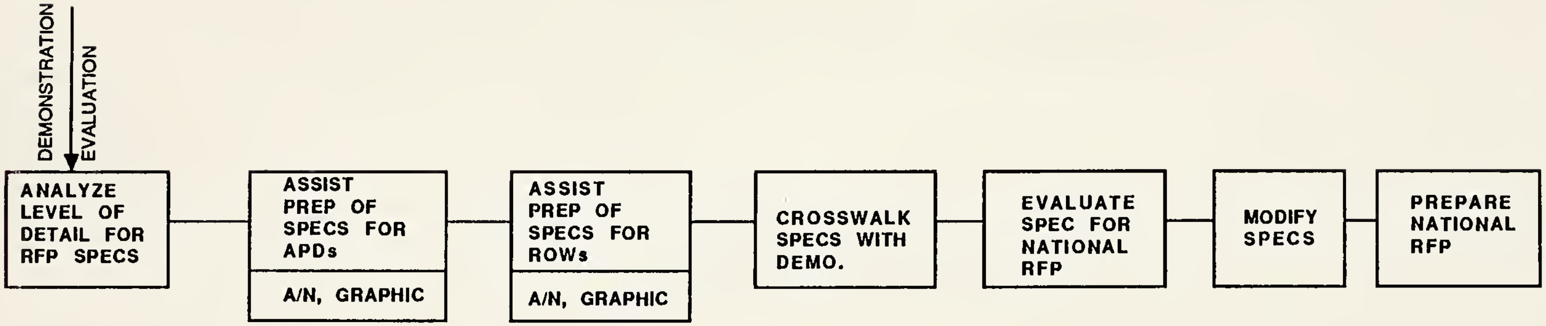
DEMONSTRATION OF DEVELOPMENTAL AUTOMATED SYSTEM V. L.I.S.


DELIVER EQUIPMENT FOR DEVELOPMENTAL CAPABILITY
LOAD DATA BASE (APD)
TEST APD PROCESSING
TRAIN FARMINGTON PERSONNEL (APD)
FARMINGTON PERSONNEL WORK WITH NEW SYSTEM (APD)
EVAL. PERFORMANCE OF NEW SYSTEM (APD)
LOAD DATA BASE + DBMS (ALL O & G)
NO
DECISION TO EXPAND FOR R/W
YES
LOAD DATA (ROW)
TEST ROW PROCESSING
TRAIN FARMINGTON PERSONNEL
TEST NEW SYSTEM
TRAIN FARMINGTON PERSONNEL
FARMINGTON PERSONNEL WORK WITH NEW SYSTEM
EVALUATE NEW SYSTEM
TO PROJECT MANAGEMENT
PERFORM DEVELOPMENTAL CAPABILITY DEMONSTRATION TO INTERNAL/EXTERNAL AUDIENCES
FROM DECISION TO EXPAND
FROM USER REQUIREMENTS
PREPARE DEMO OF DEVELOPMENTAL CAPABILITIES

L.I.S CONT. (tmb) 7/20/86

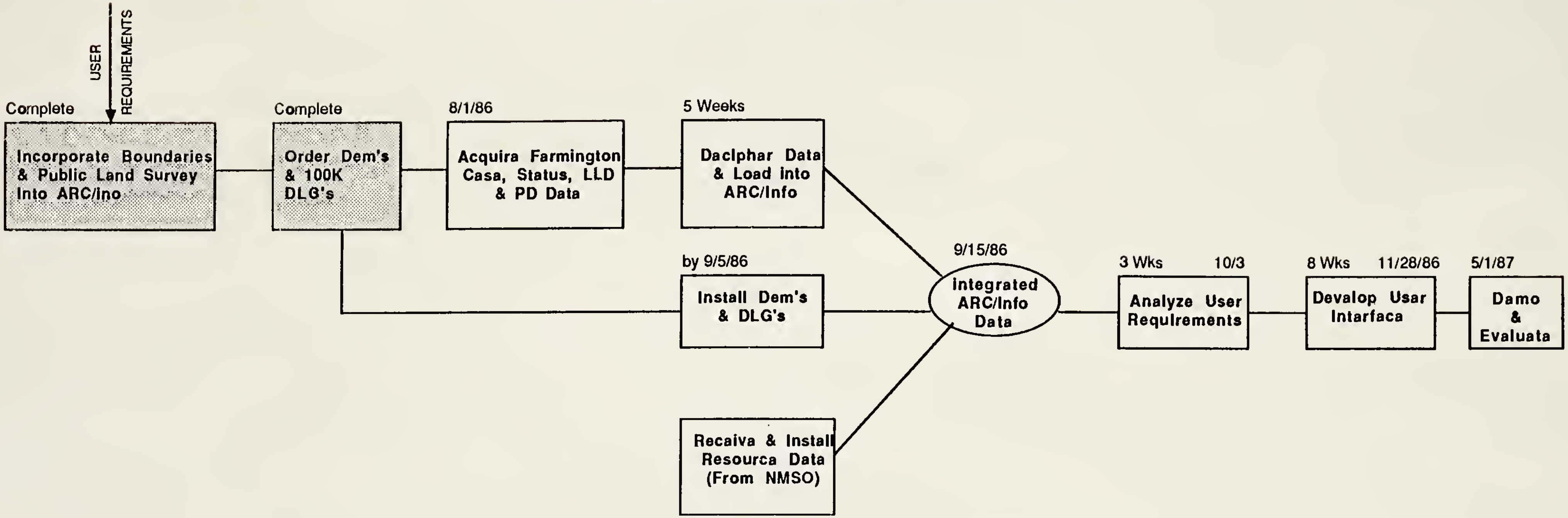
TRANSFER TO NATIONAL RFP SPECS FOR LAND INFORMATION SYSTEM

(RECORDS, RESOURCES, COORDINATES)


DEMONSTRATION
EVALUATION
ANALYZE LEVEL OF DETAIL FOR RFP SPECS
ASSIST PREP OF SPECS FOR APDs
A/N, GRAPHIC
ASSIST PREP OF SPECS FOR ROWs
A/N, GRAPHIC
CROSSWALK SPECS WITH DEMO.
EVALUATE SPEC FOR NATIONAL RFP
MODIFY SPECS
PREPARE NATIONAL RFP

NAT. RFP (tmb) 7/20/86

USGS - ARC/INFO FOR FARMINGTON DEMONSTRATION


USER REQUIREMENTS
Complete
Incorporate Boundaries & Public Land Survey Into ARC/Info
Complete
Order Dem's & 100K DLG's
8/1/86
Acquire Farmington Base, Status, LLD & PD Data
5 Weeks
Decipher Data & Load into ARC/Info
by 9/5/86
Install Dem's & DLG's
Receive & Install Resource Data (From NMSO)
9/15/86
Integrated ARC/Info Data
3 Wks
10/3
Analyze User Requirements
8 Wks
11/28/86
Develop User Interface
5/1/87
Demo & Evaluate

NOTE:

All ARC/Info Activities Located in Restion, Virginia

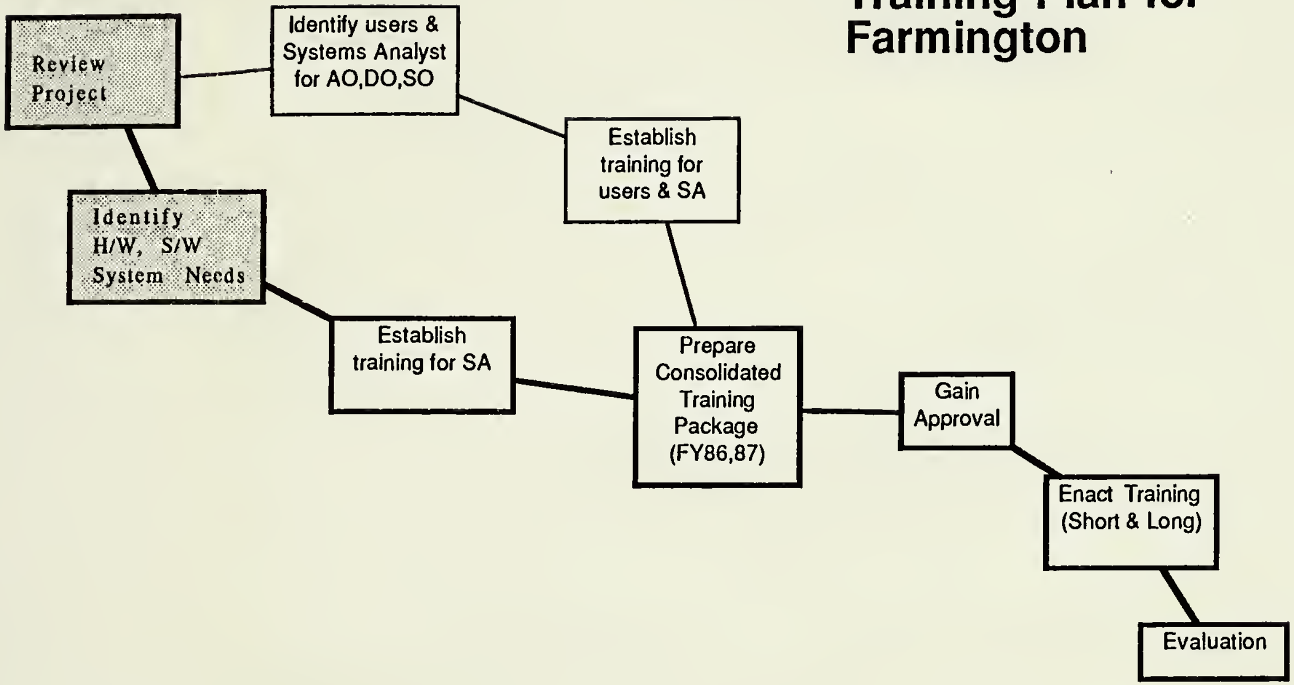
▨ IN PROGRESS OR COMPLETED

djr (USGS-ARC/Info(Farm.) 7/20/86

Review

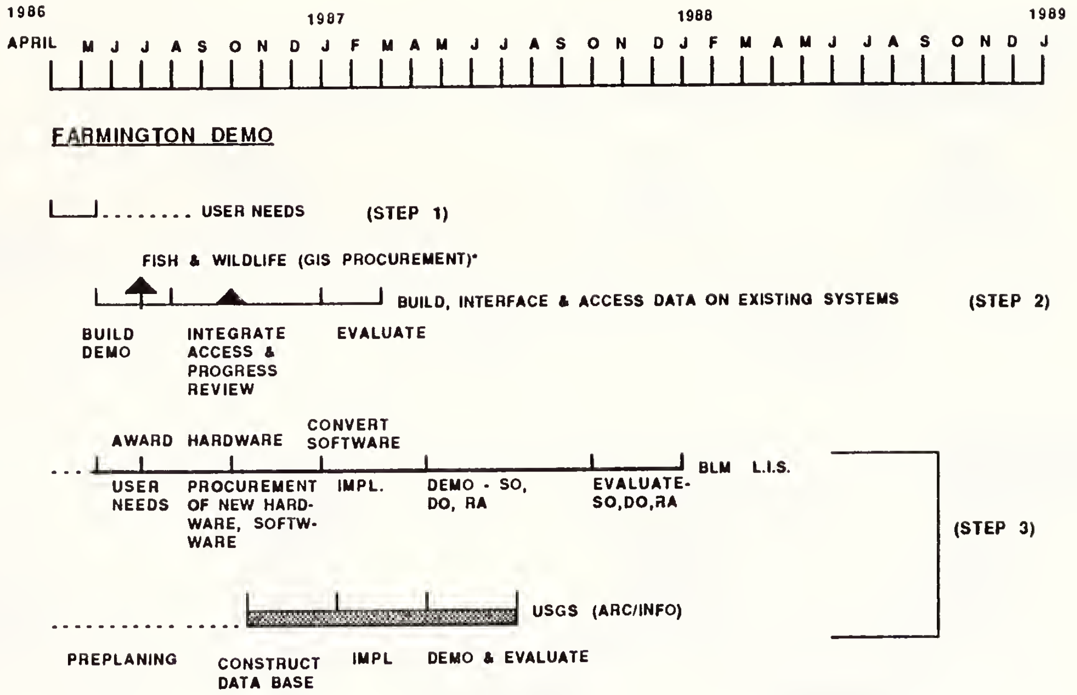
Project

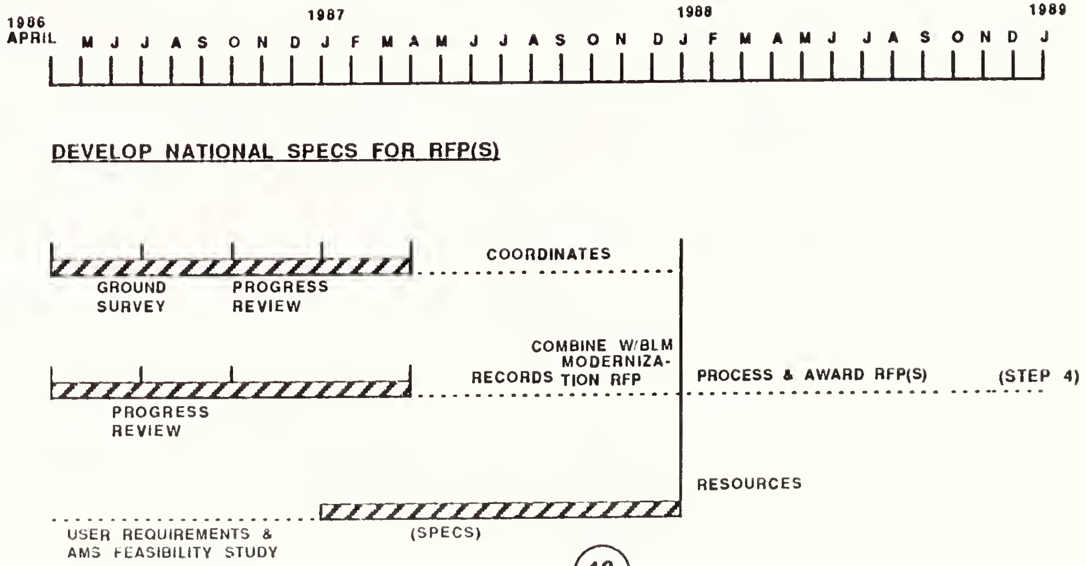
Training Plan for Farmington


Review Project
Identify users & Systems Analyst for AO,DO,SO
Establish training for users & SA
Identify H/W, S/W System Needs
Establish training for SA
Prepare Consolidated Training Package (FY86,87)
Gain Approval
Enact Training (Short & Long)
Evaluation

Trng Plan for Farm., Santa Fe July 86 Options Paper 7/20/86 (djr)

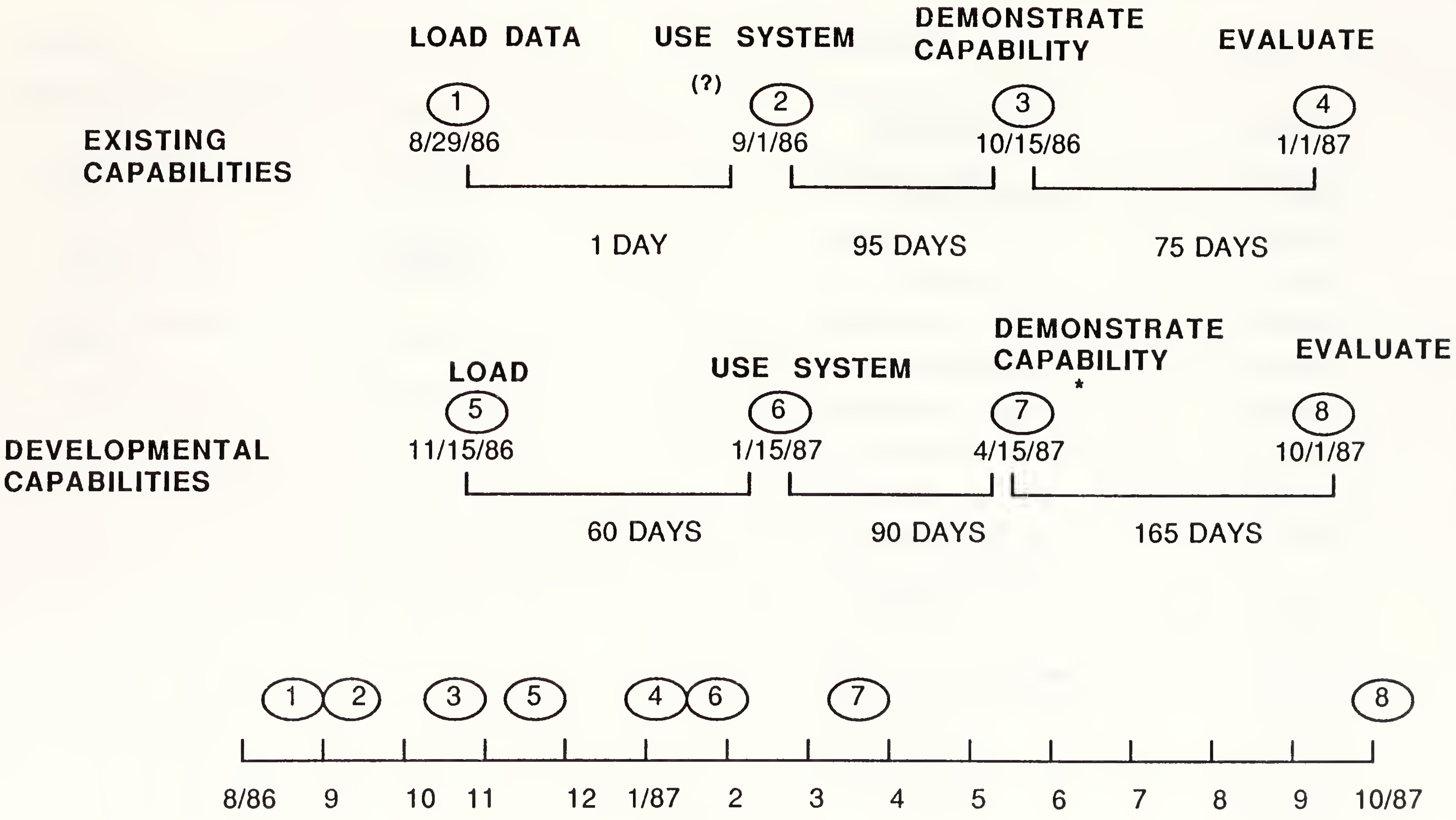
FARMINGTON DEMONSTRATION PROJECT - 5/12/86





Farmington Demo (GANT) djr

MAJOR TASK TIMELINE FOR FARMINGTON DEMO PROJECT



* CRITICAL FOR INPUT INTO NATIONAL RFP SPEC'S

FY 86 PROJECTED COSTS

EQUIPMENT	COST
Redline Hardware/Peripherals Purchases	$69,000.00
Blueline Equipment Purchases	
HP9000	$175,000.00
Software	$30,000.00
Prime Level D (2)	$65,000.00
Software	$19,000.00
Perhp. & Terminals	$76,000.00
Geographic Coordinate Collection	$41,000.00
TOTAL	$475,000.00

FY 87 PROJECT COSTS

EQUIPMENT	COST
Maintenance HP & Perph.	
Operating System	$35,000.00
Software Maintenance	$7,000.00
Maintenance PRIME	$2,000.00
Software Maintenance	$3,500.00
Supplies	$20,000.00
System Administrator	$35,000.00
System Operator	$20,000.00
Initial Start-up (Contract)	$30,000.00
Contract Programming	$20,000.00
Training (Users)	$25,000.00
Training (SA)	$ 7,000.00
Communication, Telecom	$5,000.00
District & State Ofc WM Assistance	$40,000.00
Travel	$10,500.00
Demo media & Presentation	$15,000.00
Project Manager	$35,000.00
Relocation Costs for SA & Proj. Mgr.	$40,000.00
TOTAL	$350,000.00

FARMINGTON DEMONSTRATION PROJECT

ROLES AND RESPONSIBILITIES

Farmington Demonstration Project Manager

Responsible for overall project leadership and management, using the technical support staff provided by the Denver Service Center, and the LIS infrastructure created in the New Mexico State Office.

Responsible for development of the Farmington Project Plan, and any subsequent modifications thereto.

Reports to the Area Manager, Farmington, New Mexico on project progress and to ensure that NM LIS Infrastructure requirements are met.

Uses the Farmington Project Plan to identify project management, scheduling, or resource issues requiring management resolution. Convenes Farmington Project Steering Committee, composed of NM Associate State Director, ALMRS/GIS Project Manager, and Farmington Area Managers, as necessary to report on project progress and resolve managerial issues.

Farmington Resource Area

Responsible for identifying user requirements, preparation of resource data to be automated associated with the FDP and a process for integrating the automated system into day to day activities. Assist in preparing the benefits/costs evaluation of automated processes vs. manual processes. Responsible for maintenance of data base when established. It will be Farmington's responsibility to evaluate if the FDP is meeting their stated user requirement. Demonstrate, on-site, the automated processes derived from the demonstration effort. Export findings to other offices. Assure common data bases at all locations.

Albuquerque District Office

Provides assistance on user requirements definition and assists in program direction and quality control. Ensures that all data collected meets established quality standards. Reviews and corrects Case Recordation Data Base for Right-of-Way and other Lands related cases.

New Mexico State Office

Provide standards and quality control for the collection of resource, records, and coordinate data. Provide policy oversight of land management principles to the integration of resource, records, and coordinate data themes. Provide data for records and coordinates and any appropriate available specialized data. Provide ADP support and training as needed. Assist and support the Farmington Resource Area and Denver Service Center as requested and needed.

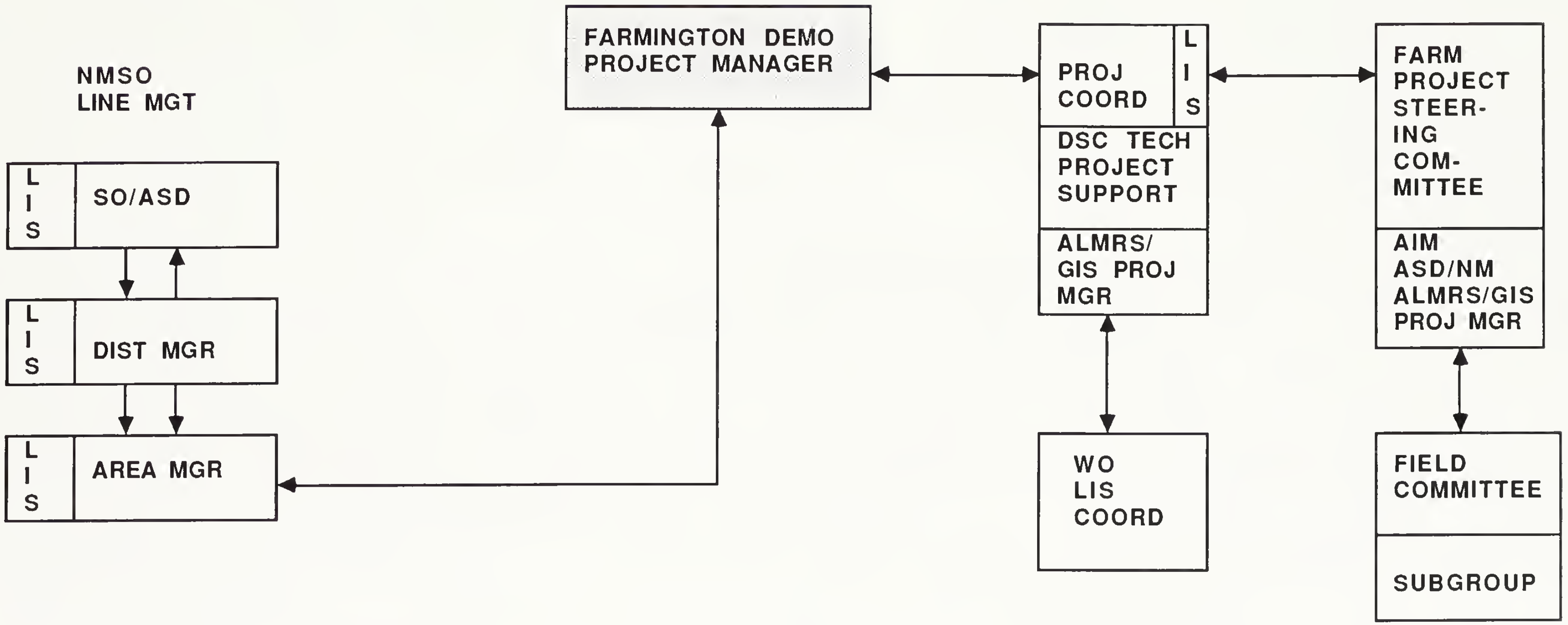
Denver Service Center

Provide technical expertise to initialize FRAH System(s) including hardware, software, and telecommunications. Assure coordination with Washington Office. Evaluate overall project products and document for inclusion in FRP. Provide technical and managerial support for systems operation, software enhancement, and maintenance and demonstration capabilities.

Washington Office

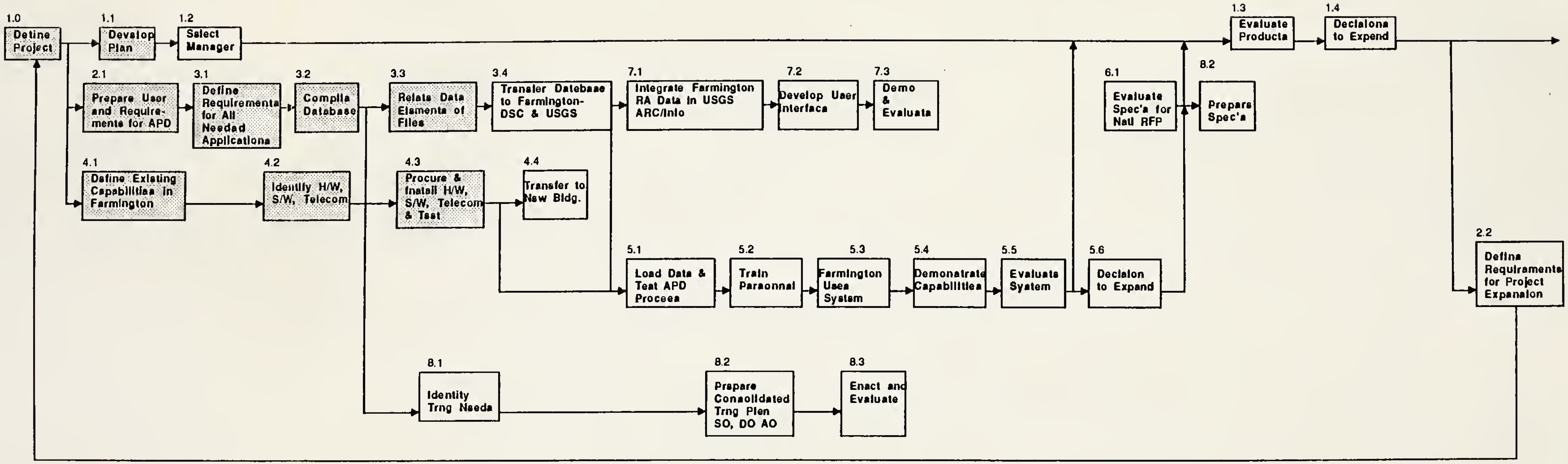
Provide policies and guidance for the overall integration of a Land Information System. Secure and provide strategic funding for the assured continuation of demonstration project(s). Provide Washington Office level coordination with other involved Federal agencies.

FARMINGTON DEMONSTRATION PROJECT ROLES & RESPONSIBILITIES



FARM ROLES & RESP. (FARM)djr(7/25/86)

FARMINGTON TASKS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5.1 Load Data & Test APD Process
5.2 Train Personnel
5.3 Farmington Uses System
5.4 Demonstrate Capabilities
5.5 Evaluate System
5.6 Decision to Expand
8.1 Identify Trng Needs
8.2 Prepare Consolidated Trng Plan SO, DO AO
8.3 Enact and Evaluate

1.0 Project Mgmt
- 1.0 Define Project
- 1.1 Develop Plan
- 1.2 Select Manager
- 1.3 Evaluate Products
- 1.4 Decisions to Expand

2.0 User Reqmt's
- 2.1 Prepare User, Functional Requirements for APD
- 2.2 Define Requirements for Project Expansion

3.0 DB Cons't
- 3.1 Define Requirements for All
- 3.2 Compile Database
- 3.3 Relate Data Elements of Files
- 3.4 Transfer Database to Farmington - DSC + USGS

▨ In Progress or Completed

4.0 Implement Cap.
- 4.1 Define Existing Capabilities In Farmington
- 4.2 Identify H/W, S/W, Telecom
- 4.3 Procure & Install H/W, S/W, Telecom & Test
- 4.4 Transfer to New Bldg.

5.0 Demo Auto (LIS)
- 5.1 Load Data & Test APD Process
- 5.2 Train Personnel
- 5.3 Farmington Uses System
- 5.4 Demonstrate Capabilities
- 5.5 Evaluate System
  - 5.5.1 Present
  - 5.5.2 Developmental
- 5.6 Decision to Expand
- 5.7 Decision to Expand

8.0 Transfer to RFP
- 8.1 Evaluate Spec's for Natl RFP
- 6.2 Prepare Spec's

7.0 USGS Demo
- 7.1 Integrate Farmington RA Data In USGS ARC/Info
- 7.2 Develop User Interface
- 7.3 Demonstrate and Evaluate

8.0 Trng
- 8.1 Identify Training Needs
- 8.2 Prepare Consolidated Training Plan SO, DO, AO
- 8.3 Enact and Evaluate

High Level

(1.0) Manage
(2.0) Define Requirements
(4.0) Install Capabilities
(8.0) Train
(4.0)(5.0) Implement
(1.0)(6.0) Evaluate
(1.0) Expand

dy (Farm. Tasks (Farm.)) 7/20/86

SUMMARY NARRATIVE OF FARMINGTON TASKS

1.0 Define Project

Define the minimum goals and objectives of the FDP and their relationship to other major Bureau programs. Responsibility for the project is a tripartate team consisting of records, coordinates and resource functions.
Who: Service Center
When:
Duration:

1.1 Develop Plan

Develop a project management plan that details the action items, schedule, responsibilities, and procedures for the successful implementation of the FDP. The plan will be dynamic and will be used as a documentation tool.
Who: Service Center
When:
Duration:

1.2 Select Manager

Determine the location and organizational position of Project Manager. Complete a position description for the duties and major responsibilities and select a Project Manager.
Who: NMSO
When:
Duration:

1.3 Evaluation Products

Determine specific outputs, including system and user products, and prepare evaluation criteria in order to determine the applicability of an LIS as a short and/or long term strategy for meeting Bureau needs.

Who: Service Center
When:
Duration:

1.4 Decision to Expand

Decide, based on the results of the evaluations, if it would serve the objectives of the FDP or other related activities to expand the scope of the project.

Who: BLM Director
When:
Duration:

2.0 User Requirements

2.1 Prepare User and Functional Requirements for APDs

Document the procedures for processing APDs and prepare conceptual diagrams depicting the flow of information. The documentation and diagrams will be used to define functional requirements and automated capabilities to process APDs. The Farmington Resource Area will have the lead responsibility. This task should be completed by August 15. Task 2.1 is dependent on completing the project definition.

2.2 Define Requirements for Project Expansion

Document the plan and procedures to accommodate additional applications of the LIS. Functional requirements and automated capabilities for these processes will be defined. The Farmington Resource Area will have the lead responsibility. This task is dependent on the decision to expand the scope of the project. Duration should be three months, but it is dependent upon the extent of project expansion.

3.0 Data Base Construction

3.1 Define Data Base Requirements

Define the requirements for data themes, data formats, and data storage. A strategy will be developed to relate and/or merge coordinate, records, and resources data for the selected 9 township area in the Farmington Resource Area. The Farmington Resource Area has lead responsibility. This task will be completed by August 17, 1986, and is dependent on defining the user requirements.

3.2 Compile Data Base

Compile all of the coordinate, records and resource data required to meet user requirements. This task will include merging status and legal land description files, mapping, digitizing or resource data, and generating coordinates based on survey information. Additionally, coordinate data will be verified at the New Mexico State Office with records and resource data verified at the Farmington Resource Area.. This task is dependent on output from the defining data base requirements and developing a strategy for relating the data. The New Mexico State Office will have the lead responsibility. Duration of the task should be 1-3 weeks.

3.3 Relate Data Elements of Files

Link and/or integrate the elements of coordinate, records and resource data files on the designated hw/sw configuration. This task will provide the technical strategy for accessing and storing all geographic and alphanumeric data in the LIS. The SC will have the lead responsibility for this effort and is dependent on the definition of user requirements and the compilation of data. This task will be completed by September 15, 1986.

3.4 Transfer Data to Farmington, SC, and USGS

Transfer digital data files consisting of coordinate, records and resource information. Documentation on the data will also be provided to the Farmington Resource Area, Service Center and U.S. Geological Survey. This task will include loading and verifying the data at all locations. The SC will have the lead responsibility requiring five days to complete the task. It is dependent on the developing and relating the data base as well as installation and testing of hardware and software.

4.0 Implement Capabilities

Identify and acquire the necessary capabilities for FRA, ADO, NMSO and the SC.

4.1 Define Existing Capabilities in Farmington

Inventory the two physical office locations in Farmington to identify existing ADP and telecommunication capabilities; to assess available air conditioning and to consider possible locations for computer hardware.

Who: Service Center
When Completed: April, 1986
Duration: Two days

4.2 Identify Hardware, Software and Telecommunication Needs

Identify hardware for addition to current capabilities and hardware for developmental capabilities. Identify and select DBMS software for the FRA, NMSO, and SC computers from list of evaluated alternatives. Develop approach to match and merge available records data (i.e., LLD, Status, Case Recordation). Develop specifications for DBMS to MOSS integration, parcel generator, PCCS to ADS data conversion and data exchange software.

Define software compliance requirements for UNIX, Fortran 77 and GKS.

Specify data communication requirements for user access and data transfer between the three FRA facilities, ADO, and two sites at NMSO, and two sites for SC.

Specify requirements for data exchange to other agencies (i.e., USFS).

Who: SC Lead; FRA and NMSO support
When: September 15, 1986
Duration: Two months

4.3 Procure, Develop, Install and Test Hardware, Software, and Telecommunication Capabilities

Procure hardware for addition to current capabilities and for support of developmental capabilities. This includes graphics, peripheral devices; Prime Level A for NMSO; Prime Level D for ADO; two Prime Level D computers and an HP 9000 computer for FRA.

Procure DBMS for FRA, NMSO, and SC.

Develop DBMS to MOSS interface, parcel generator and PCCS to ADS data conversion software. Develop software for testing the Federal Graphic Exchange Format for data exchange to other agencies.

Complete conversion of GIS software to Fortran 77 and UNIX, using a standard graphics interface. Integrate HP and Prime computer systems at SC and FRA and convert PCCS and install necessary software on Prime Computers.

Develop APD capabilities using 4GL/DBMS and UNIX macros.

Who: SC
When: February, 1987
Duration: Seven months

4.4 Transfer to New Building

Transfer all data bases, software, computer equipment, telecommunications equipment to new building location for FRA office. Complete installation and testing of new configuration.

Who: NMSO, DSC, Contractor Support Staff
When Completed: Upon completion of new building.
Duration: One month

5.0 Implement Capabilities (New Facilities)

5.1 Load Data and Test APD Process

Load in Farmington tapes that have data for 9 twn. all records, resources, coordinate data. Load software for APD process. Test on HP and Prime the data for HW compatability. Do case study (Initiate day run for APD software). First load in Sante Fe (by August 29, 1986). NMSO (Speight) Second load in Farmington (by November 15, 1986). Farmington identifies enhancements to entire APD system.

Who: DSC - Load data and software.
NMSO will load coordinates and resources
DSC/FRA/DO/SO - Test APD process
NMSO/DSC: Test DBMS

When: Present hardware loaded in Santa Fe (all data) August 29, 1986.
Developmental hardware - November 15, 1986.

Critical Dependencies:
Depend on transferring data from DSC to FRA.
Get red line perph. in FRA and telecom hookup.
HP or Prime set up to work.

5.2 Train Personnel

Train identified personnel within approved consolidated plan.
Initiate people in new procedures for APD process.
Prepare evaluation strategy and training.
RA, DO, SO, DSC, WO personnel to be trained.

Who: Project Manager

When: Start: August 15, 1986 continued to project end.

Critical Dependencies:
Hired project manager and systems administrator.

Installation of hardware and software in FRA.
Dedicates working space (new building).

5.3 Farmington Uses System

Farmington hooked up by leased lines and microwave to Santa Fe and using present software on DG.

Developmental System
- Existing Facilities - Both FRA offices to have HP and Prime installed and operational.
- New Structure -

Who:

a. Existing System - Project Manager - FRA
NMSO

b. Developmental System
Existing Facilities - Project Manager - FRA
Prime, HP - DSC, Hp and Prime contractor
on-site FRA representatives

New Structure - Project Manager, System Adm. FRA
DSC/NMSO

When: September 1, 1986, from red line complete by October 15, 1986.
January 15, 1987 - Start
April 15, 1987 - Start

Critical Dependencies:
Hookup or leased lines and microwave.
Hardware/Software installation.
Construction of new building.

5.4 Demonstrate Capabilities

1. Demonstrate, in FRA office setting, complete enactment of APD process; with the present and developmental hardware/software in FRA.
Perform audience analysis for all potential demonstrations. (Internal BLM, Dept./other federal agencies, state and local, congressional, OMB, Univ., professional societies, Nation Acad. of Sciences).
Prepare story board and media presentation.

Who: Project Manager, system administrator and FRA APD staff.

When: October 15, 1986 - Existing
April 15, 1987 - Developmental

All previous dependencies.

5.5 Evaluate System

5.5.1 Present

5.5.2 Developmental

Evaluate B/C trade offs between existing manual, existing semi-automated, and existing automated capabilities, and developmental automated capabilities.

Who: Present - Project Manager and staff DSC, SO, DO.
Developmental - Project Manager and Staff DO, SO, DSC, WO

When: Present - January 1, 1987
Developmental - October 1, 1987

Critical Dependency:
System works.

5.6 Decision to Expand

Who: SC Director or BLM Director. (Either one can make the decision.)

When: April 15, 1987 to July 1, 1987 Decision Window.

Decisions options:

- Expand to all O & G within 9 townships
- Include R/W within 9 townships
- Expand to rest of FRA for APDs
- Expand to rest of FRA for all O & G
- Expand to rest of FRA for all O & G and R/W
- Expand to FRA for all LIS applications

Dependency:
Need to prepare a project management plan.

6.0 Transfer Demonstration Specs to National RFP Specs

6.1 Evaluate Specs for National RFP

Evaluate applied APD automation in FRA and define appropriate alphanumeric and graphic specifications for processing APDs. The evaluation will provide guidance on how information gathered in Farmington can be used to improve functional and user specifications for national RFP.

Who: Project Manager DSC

When: April 15, 1987

Dependency:
Working System (Personnel skills developed HW/SW available).

6.2 Prepare Specifications

Assist in the preparation of the specifications (user, functional) for APDs as an application of a Land Information System using FRAs field perspective.

Who: NMSO/DSC

When: May 15, 1987

Dependency:
Completed Evaluation

7.0 USGS/ARC/INFO

7.1 Integrate Farmington RA Data Into USGS ARC/Info

Provide USGS with duplicate interfaced files for records, resources, and coordinates for the 9 townships in FRA; provide compatible data interfacewith USGS data, e.g. DEMs, topologically structured water, road, etc. data.

Who: DSC
When: September 15, 1986
Where: Will be loaded at Reston on USGS system.

Dependency:

- Data collection, organization for all APD supporting resource themes.
- Transfer collected data into USGS format.

7.2 Develop User Interface

Develop macros and front end processing to ARC/INFO for use by users.

Who: USGS-Reston
When: January 15, 1987

7.3 Demonstrate and Evaluate

Demonstrate the meeting of the user requirements for the processing of APDs and related activities using ARC info; discerning and comparing the differences with other hardware: HP, Prime; and software MOSS, HASP, and others. Identify to the BLM for the national specs for the RFP those significant differences. In so doing, prepare recommended specs for LIS requirements and the interfaced data requirements.

Who: DSC
When: May 15, 1987

Dependency:
Working knowledge of user requirements related to APDs and related activities.

8.1 Identify Training Needs

Identify for all users and systems administrators:
Operators for FRA, ALBQ, Santa Fe, DSC, WO the skills necessary to implement the demonstration. Prioritize these needs for acquiring appropriate training for identified staff and users.

Who: DSC, NMSO, WO
When: September 1, 1986

Dependency:
HW/SW delivery schedule

8.2 Prepare Consolidated Training Plan

Prepare consolidated training package for all users and systems administrators in FRA. The plan should consolidate training needs by location to obtain most efficient and cost effective product. Produce a schedule of necessary training for identified personnel.

Who: NMSO, DSC
When: September 1, 1986

Dependency:
Identifying training needs.
Project Manager acquires project management training.
User requirements/functional requirements completed.

8.3 Enact and Evaluate Training

Enact the training at all levels of the project. Evaluate the results of delivered training and provide continuous necessary enhancements. Provide for multi media information transfer of training to other BLM offices. Provide full historical documentation for the project as future training and evaluation vehicle.

Who: Project Manager
When: October 1, 1987

Critical Dependency:
HW/SW installation
Development of training plan
Project implementation

APD APPROVAL PROCESS

When an Application for Permit to Drill (APD) is received in the mail room, either by mail or hand delivery, the following approval process takes place:

A. Mail Room - Date stamps "Received" and forwards directly to the Adjudication Section.

B. When the Adjudication Section receives the APD, they pull the lease card to check the lease number and legal description of the lease and the proposed well to assure that the well location given on the APD falls within the boundaries of the lease. Next the well location is plotted on the panel maps, in pencil, to show that an APD has been received. Adjudication then pulls the lease file and checks the General Correspondence and checks Bond Coverage, Lessee of Record, and Assignments of Record Title or Assignment of Operating Rights. If the lease has no previous drilling activity, the General Correspondence is requested from the District Office or constructed as best they can from the microfiche files. Inactive Indian leases are kept on file as received from Bureau of Indian Affairs. If the APD is submitted by someone other than the Lessee of Record or the holder of operating rights, a request is made to the applicant for a Designation of Operator. At this point a copy of the APD is sent to the Fluid Surface Management Section for their review and to be forwarded to the appropriate Surface Management Agency for surface stipulations. Adjudication then makes up a new folder and a mailing label with the well name, lease number, location, and operator which is attached to the General Requirements for the use of the operator to assure that the correct data is placed on the well sign once the drilling has commenced. Adjudication also assures that the proper number of copies of the APD have been submitted and then stamps the proper distribution on the bottom of each copy of the APD. Finally, a copy of the cover sheet of the APD is made and placed in a notebook for future counting and follow-up. The cover sheet is also used for the monthly report. All copies of the APD are then attached to the new file and sent to the Petroleum Engineers (Drilling and Production Section) for their "down-hole" review.

Following is a detailed list of the information needs required by the Area Adjudication Staff to process an APD:

- -Lease Number.
- -Lease Description (Township, Range, and Section to the nearest quarter-quarter).
- -Lease Issuance and Expiration Date (also Held By Production).
- -Lessee of Record.
- -Lease Acreage.
- -Rental and Royalty Rates.
- -Term of Lease.
- -Assignments (Record Title, Operating Rights).

- KGS Designations.
- Unit Agreements (participating and non-participating).
- Communitization Agreements (Includes the legal descriptions of the Agreement area, production formations, and cross reference of all other leases involved in the Communitization Agreement).
- Producing Formations.
- Oil and Gas Pool.
- Other Mineral Leases in the Area.
- Designation of Operator.
- Surface Ownership (Surface Management Agency).
- Pending Ownership Changes.
- Bond Information.
- Rights-of-way.

C. When the APD is sent to the Fluids Surface Management (FSM) Section from Adjudication, it is first reviewed in the office to assure the Surface Use Plan is complete. If complete, an on-site field inspection is scheduled. Prior to actually going to the field for the on-site inspection, the BLM surface compliance specialist will review all available resource information to determine what resource values occur on or near the proposed area of surface disturbance. This type of resource information is contained on special maps prepared by the Resource Area Resource Specialists, Land Use Planning maps, and sometimes, in the heads of the various specialists. The purpose of the on-site inspection is to examine the proposed area of surface disturbance and then develop surface mitigation stipulations for the well pad, road, and pipeline. The on-site inspection is usually attended by a Resource Area Surface Compliance Specialist, Contract Archeologist, Company Representative, a representative of the Surface Management Agency (if surface is under the management of a Federal Agency other than BLM), and, sometimes, a representative of the Earthmoving Contractor. After the conclusion of the on-site inspection, the appropriate environmental documents are prepared and the required special stipulations are attached. The APD is then sent to the Drilling and Production Section for the engineering review.

Following is a detailed list of the information needs required by the Fluids Surface Management Staff to process an APD:

- Lease Number.
- Surface Ownership (Surface Management Agency).
- Unit Agreements.
- Threatened and Endangered Plant and Animal species and habitat ranges.
- Critical Wildlife Habitat (other than for T&E species).
- Recreation and Wilderness Areas.
- Paleontological Resource locations.
- Sheep Grazing Areas (areas where sheep graze require

somewhat different stipulations then cattle grazing areas).
- -Cultural and Historical Resource Areas.
- -Range Improvements.
- -Location of Occupied Dwellings.
- -Sand and Gravel Areas.
- -Critical Watersheds.
- -Coal Resource Areas.
- -Land Use Planning Decisions as they relate to Lands Disposal.
- -Vulnerable Water Zone Areas.

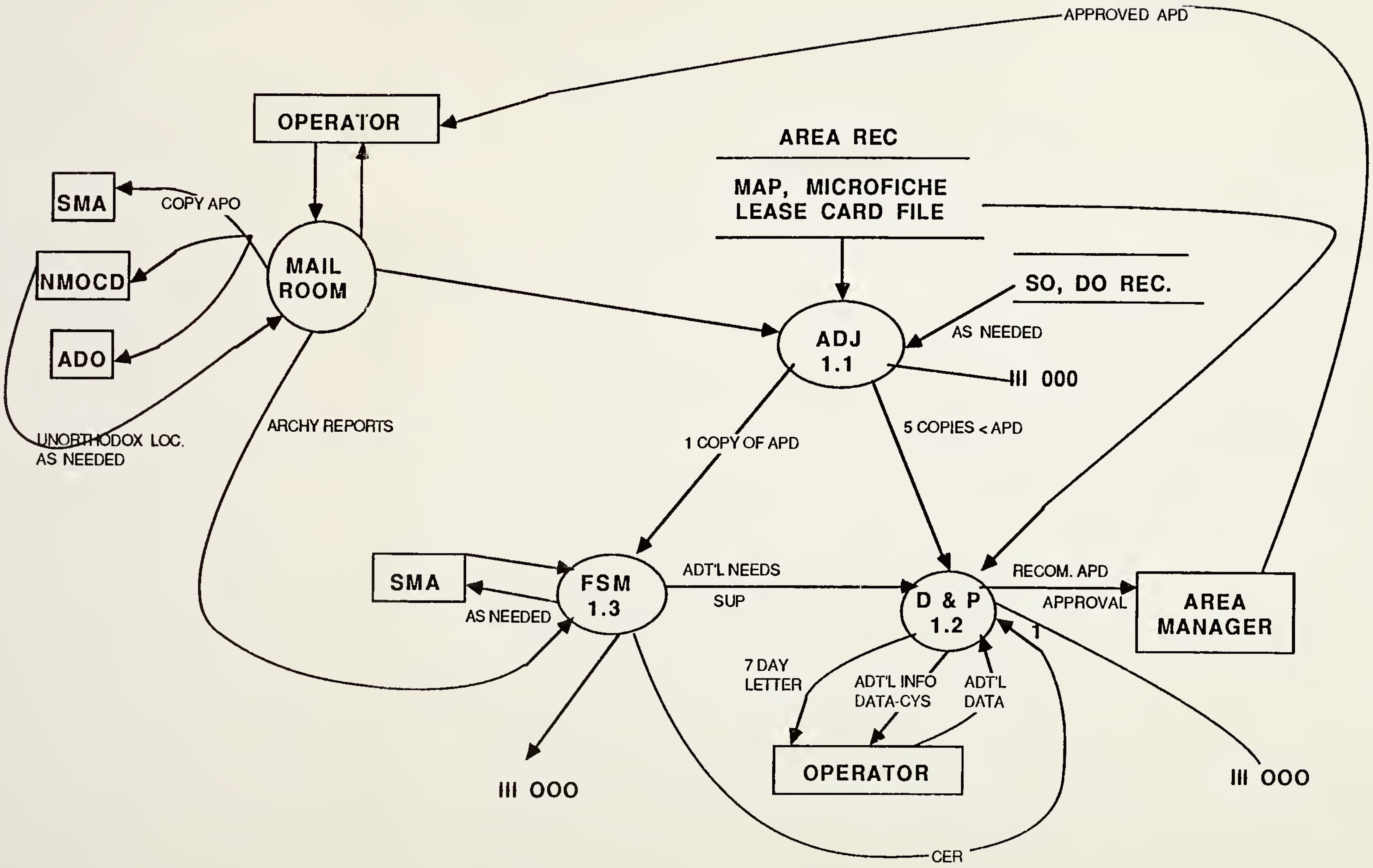
C. While the APD is being reviewed in the Fluid Surface Management Section, the Engineering Staff will the check the APD package received from the operator for Designation of Operator, completeness of the package, compliance with 43 CFR requirements, casing program, cementing program, Blowout Prevention, Plans of Development, Communitization Agreements, and size, type and weight of casing strings. A copy of the package is then sent to the Geologist who checks the operator's stratigraphic estimates to assure that critical geologic formations are adequately protected. At this point the Engineers, with consultation from the Fluids Surface Management Section, make the determination if the APD package is complete as submitted. The operator is then notified if the APD is complete or if additional data is needed.

When the APD is returned to the Engineers from the Adjudication and Fluids Surface Management Sections, the complete package is given a final review by the engineers, entered into the internal Area records (on the Apple Computer), and then sent to the Area Manager for the approval signature. After signature, the APD is considered approved and is sent to the operator.

Following is a detailed list of information needs required by the Drilling and Production Section Engineers to process an APD:

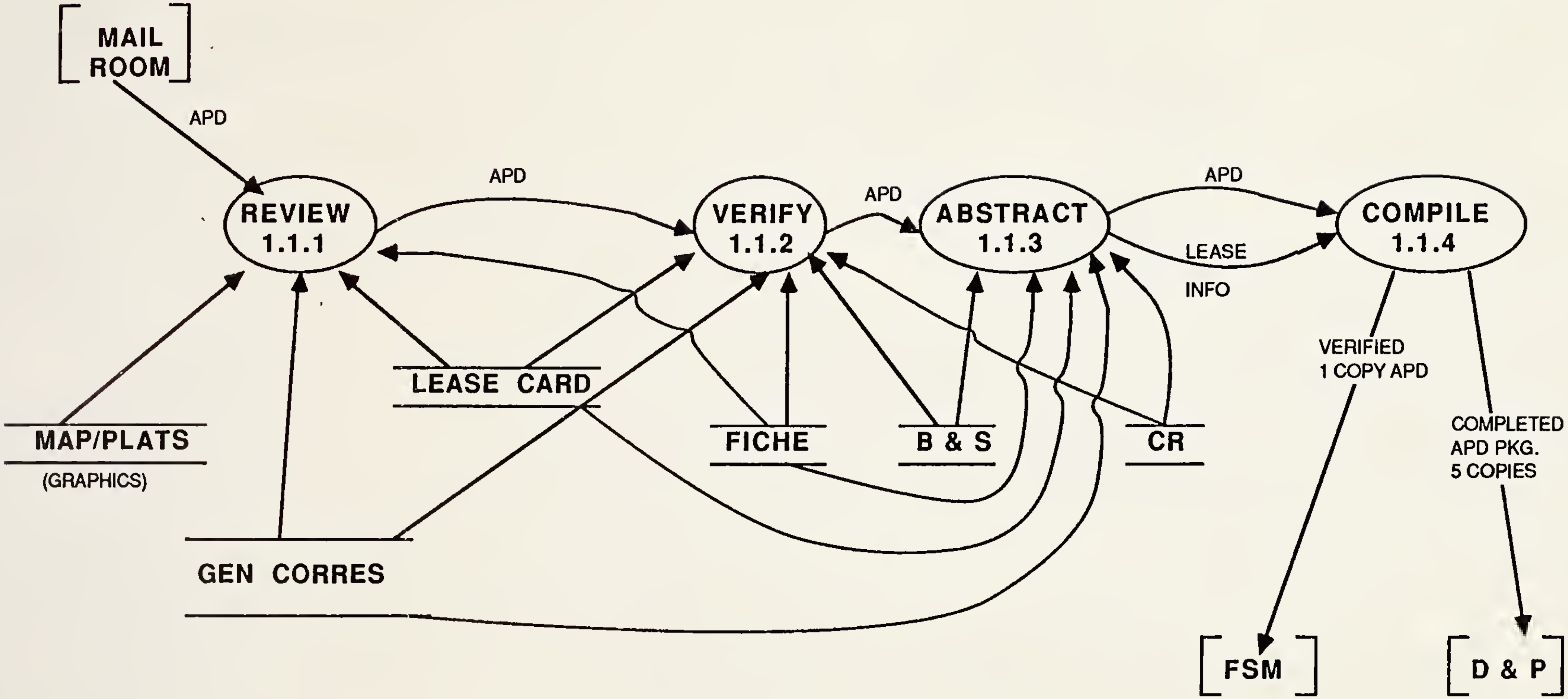
- -All Adjudication Information Needs.
- -Operating Rights.
- -Designation of Operator.
- -Bond Information.
- -Well Location Requirements.
- -State Spacing Requirements.
- -Mineral Conflicts.
- -Known High Pressure Gas Areas.
- -Known Hydrogen Sulfide Areas.
- -Known Lost Circulation Zones (Areas).
- -Date APD is Technically and Administratively Complete.
- -Unit Plan of Development.
- -Unit Operator and Suboperator.
- -Communitization Operator.
- -Panel, Development, and Plat Maps.
- -Seven Day Notice Letter Format.

CURRENT PHYSICAL DATA FLOW DIAGRAM - LEVEL -1
APD (APPLICATION FOR PERMIT TO DRILL)



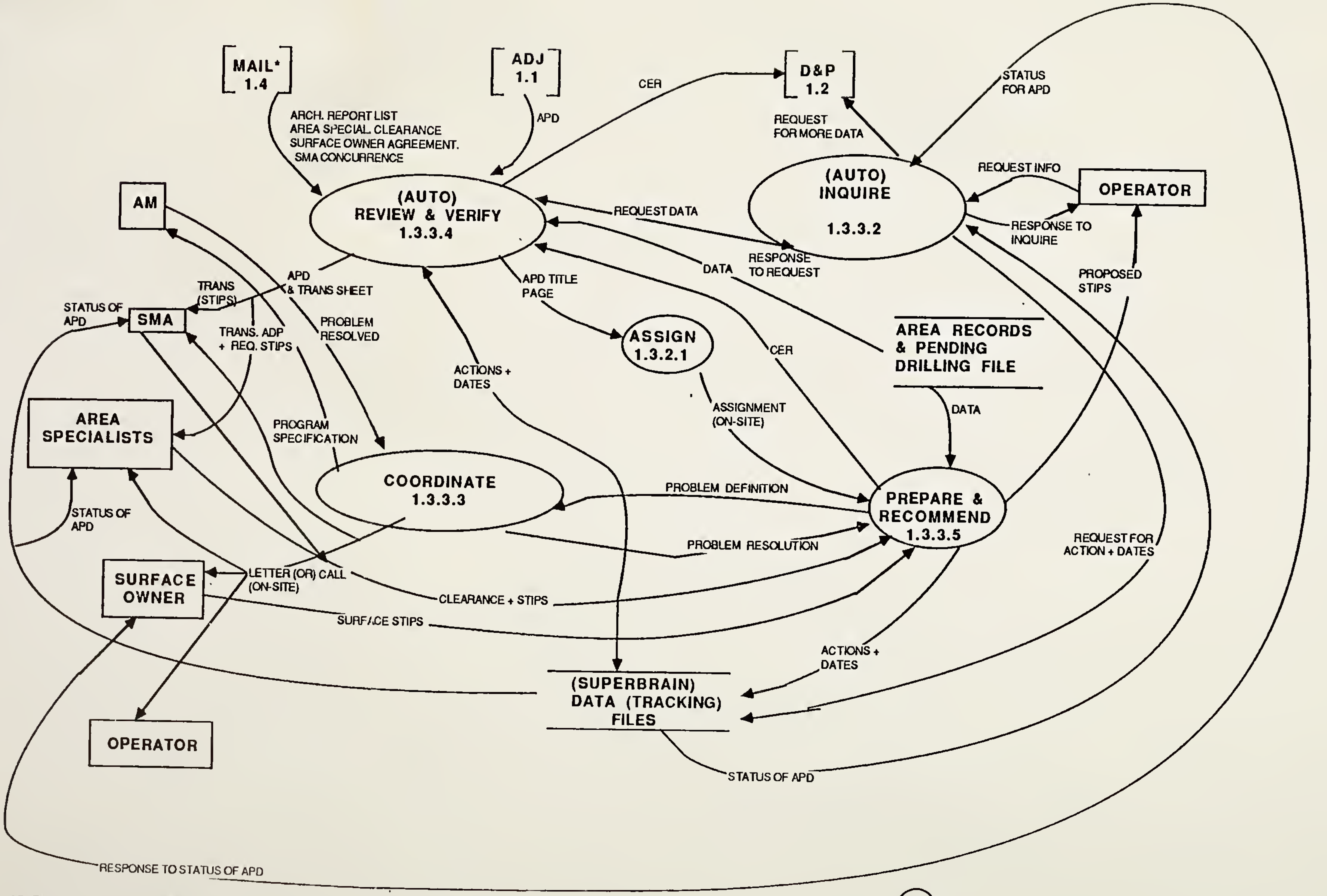
PERMIT TO DRILL (djr) 5/19/86

CURRENT PHYSICAL DATA FLOW DIAGRAM
ADJUDICATION - LEVEL - 2



ADJUDICATION L-2 (djr) 5/20/86

CURRENT LOGICAL DATA FLOW DIAGRAM
FIELD SURFACE MANAGEMENT
LEVEL 2



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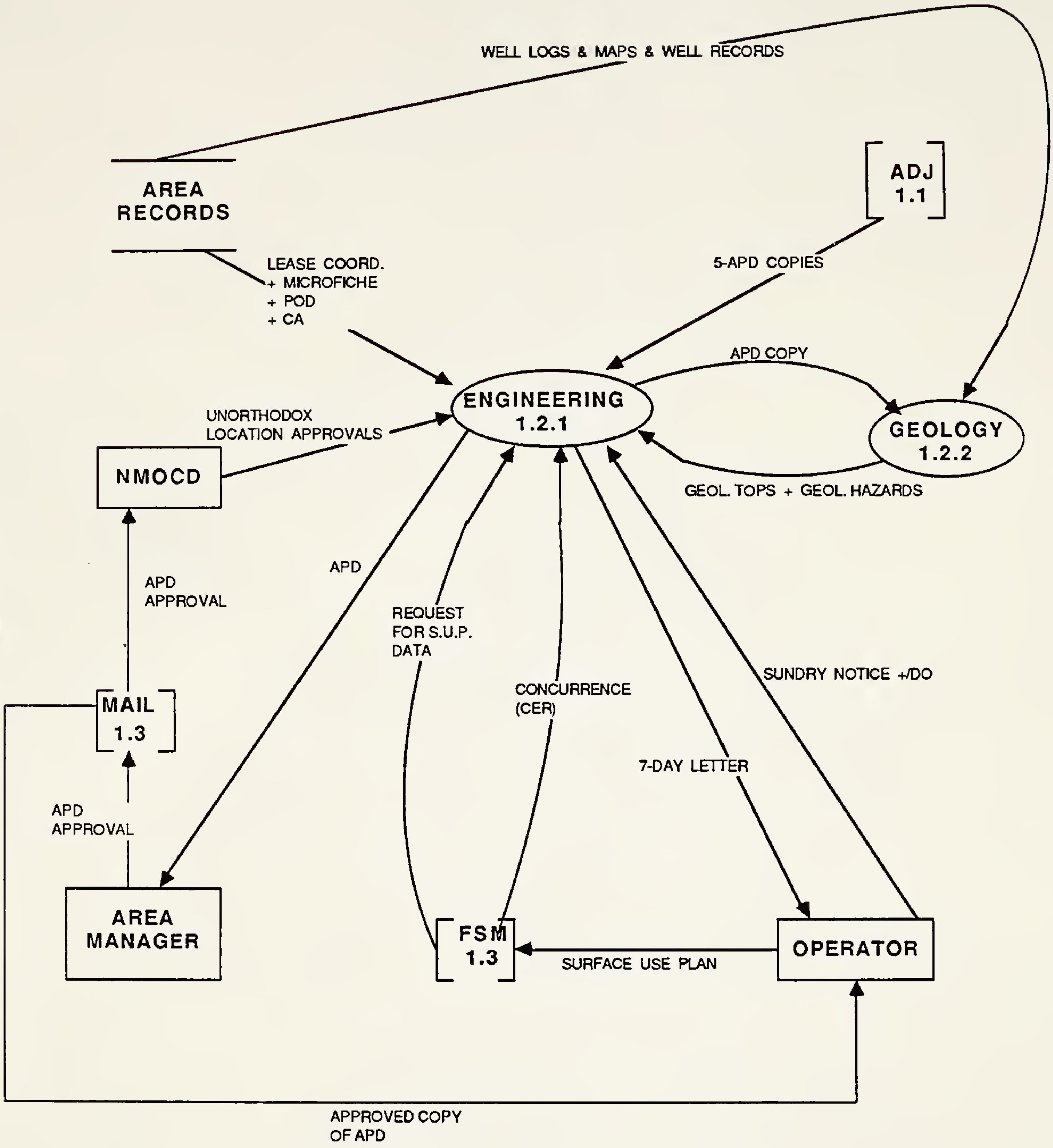
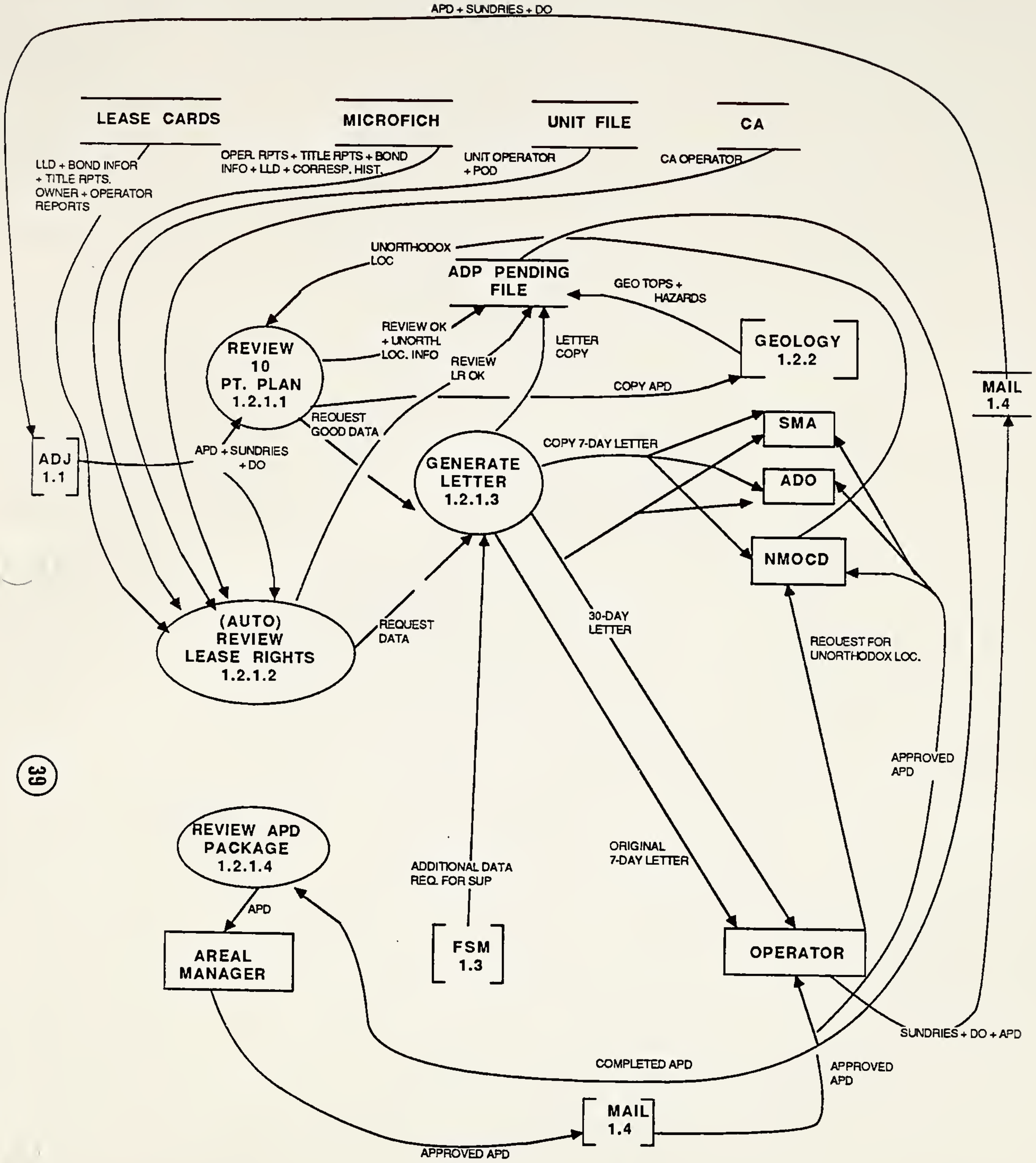
* DATA MAYBE THRU MAILROOM OR TELEPHONE

CURRENT PHYSICAL DATA FLOW DIAGRAM OF D & P LEVEL -2



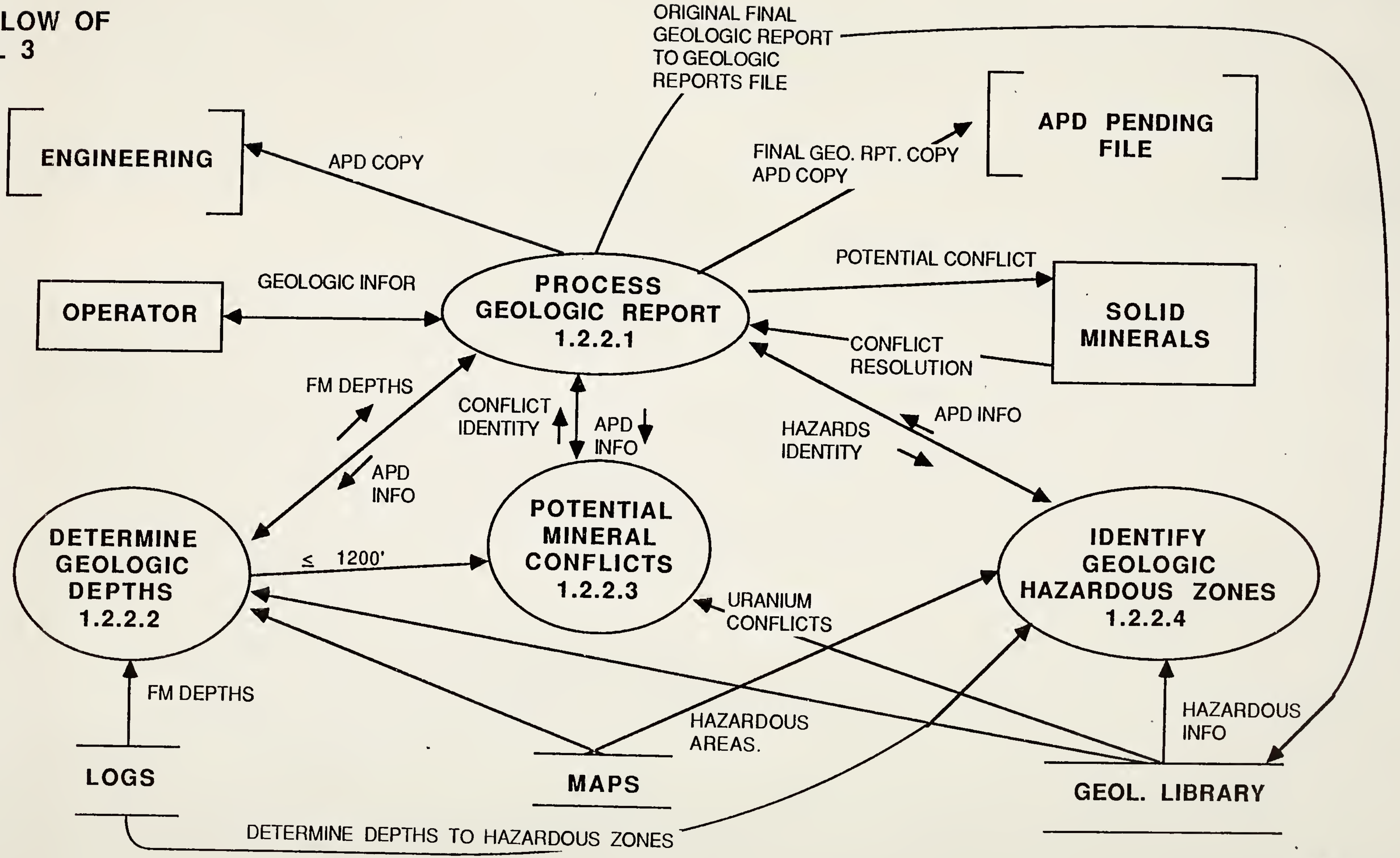
D&P L-2 (djr) 6/12/86

LOGICAL DATA FLOW DIAGRAM OF ENGINEERING LEVEL-3



ENGINEERING L-3A (djr) 6/12/86

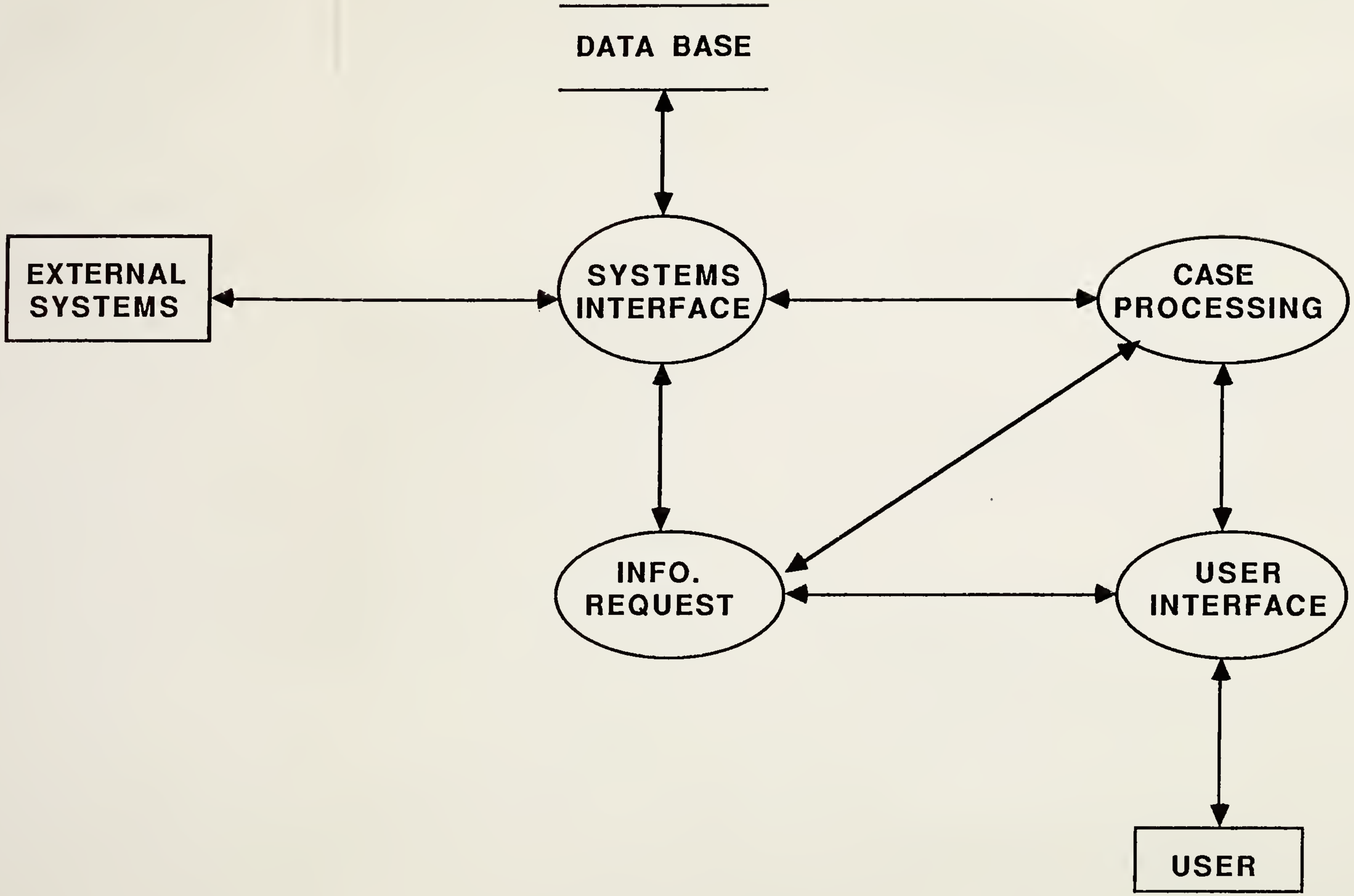
LOGICAL DATA FLOW OF GEOLOGIC LEVEL 3



GEO LEVEL -3AA (djr) 6/12/86

LOGICAL DATA FLOW DIAGRAM - LEVEL 1

NEW SYSTEM



ADP FUNCTIONAL REQUIREMENTS FOR NEW SYSTEM

Real time processing to expedite the A/N and spatial graphic portions of the application and not the package.

- Enter/retrieve data through input screens (menu-driven) (IWR Screen).

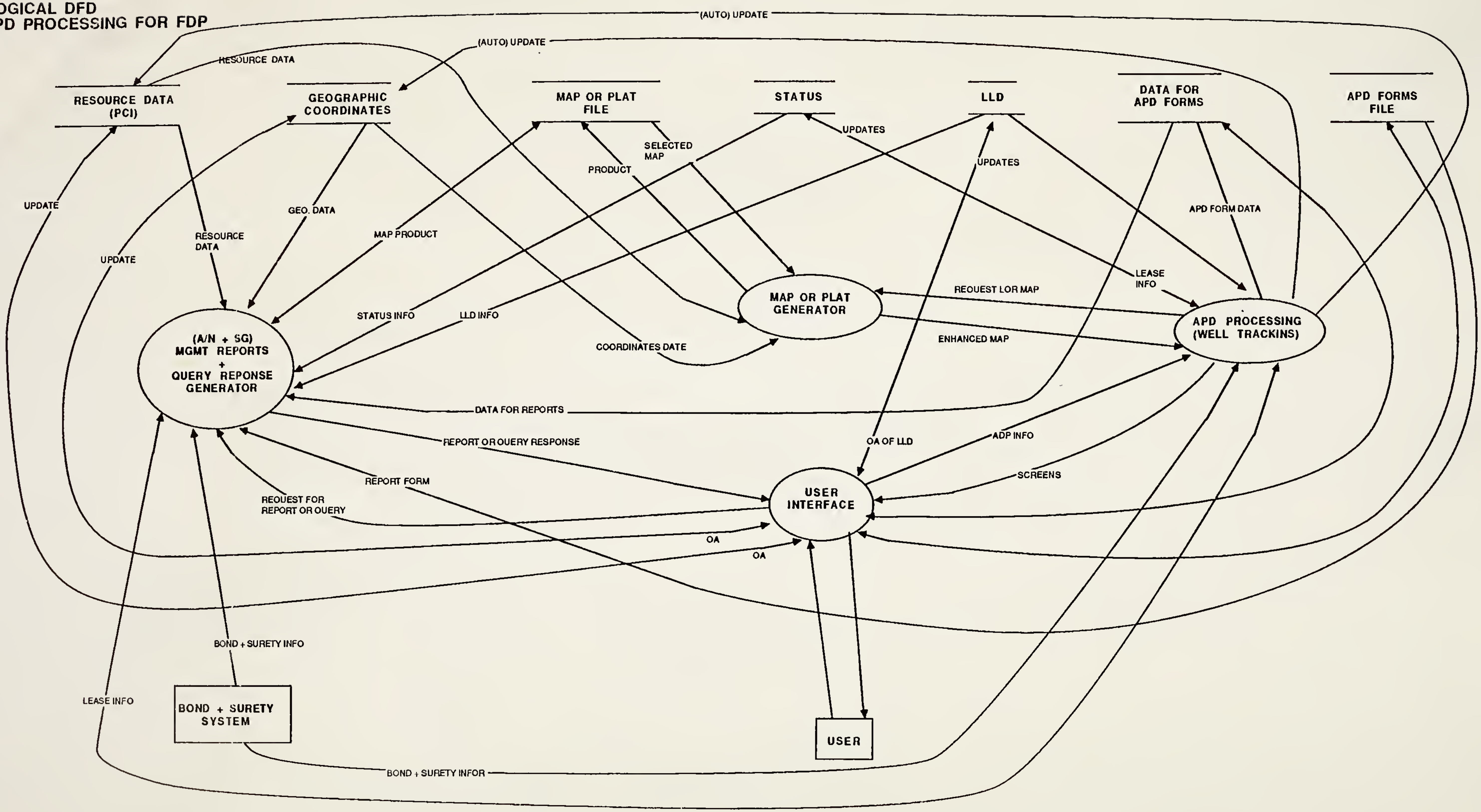
- Process input data from an
  - Application sheet (3160-3) in an automated environment (data on application must be current, valid, and correct against the lease which is found in Case Recordation).
  - 10-point plan, 13-point plan, and archeological reports remain a manual process (compare report contents with policies and procedures of BLM).

- Computer products will assist in the decision-making process.

- Office of responsibility for processing APDs will have ultimate authority:
  - Maintaining, updating, and validating information placed into data bases.
  - To establish frequency of updates of data bases.
  - Communicate to all concerned parties what has been updated and when it was updated.
  - Data must be available to all sites in a read-only capacity, except for PCI data.
  - All external systems will keep their present status in regards to policies, procedures and guidelines.
  - Process input data from an APD in an automated environment to do an edit of data contained in the APD against similar data contained on a screen which shows the lease. If there are errors, (i.e., data from the APD does not agree with that contained in the lease), then those items are flagged (by flashing the data area) by the computer for review. If the flashed (flagged) item appears on the screen, the user has the following options to change any field that has created the flashing item on the APD screen:
    (1) No change
    (2) Copy from comparable item from the status database to the item on the APD screen.
    (3) Manually input change. (Change appropriate data item that stops flashing).
  - Search for correct lease as per APD legal (LLD, i.e., MTRS) that displays corresponding TWP graphic. Move cursor to desired lease number to show number on graphic and write over the corresponding lease number of the APD screen.

- Draw the location of the proposed well site on a spatial graphic that shows also any of the following: (determine problem and solutions).
  - Mineral or resource value conflicts.
  - Geologic hazards distance boundaries of individual hazards.
  - Spacing requirements.
  - Draw location of lease with the following A/N information.
    - Show footages of well location R.S.T. section boundary and leasehold boundary.
    - Show location of adjacent well because of spacing requirements.

NEW LOGICAL DFD
FOR APD PROCESSING FOR FDP



FSM

Management Framework Plan (MFP)

(BLM from planning recommendations/decisions come from EIS process).

Resource Conflict Maps

Source of MFP map drawn by the resource specialist

- Action
    - ______ starts to _______.
    - Now serving identifiers _____________(_____________).

Lease Map

Map showing oil/gas lease lands - shows ______locations of the active well.

Maps used in FSM

* - Lease map.
* - Conflict maps (show problem areas).
* - Land Status Maps (show who has ownership of surface status.

Mineral Maps

Show who owns minerals of surface.

Topographic Maps

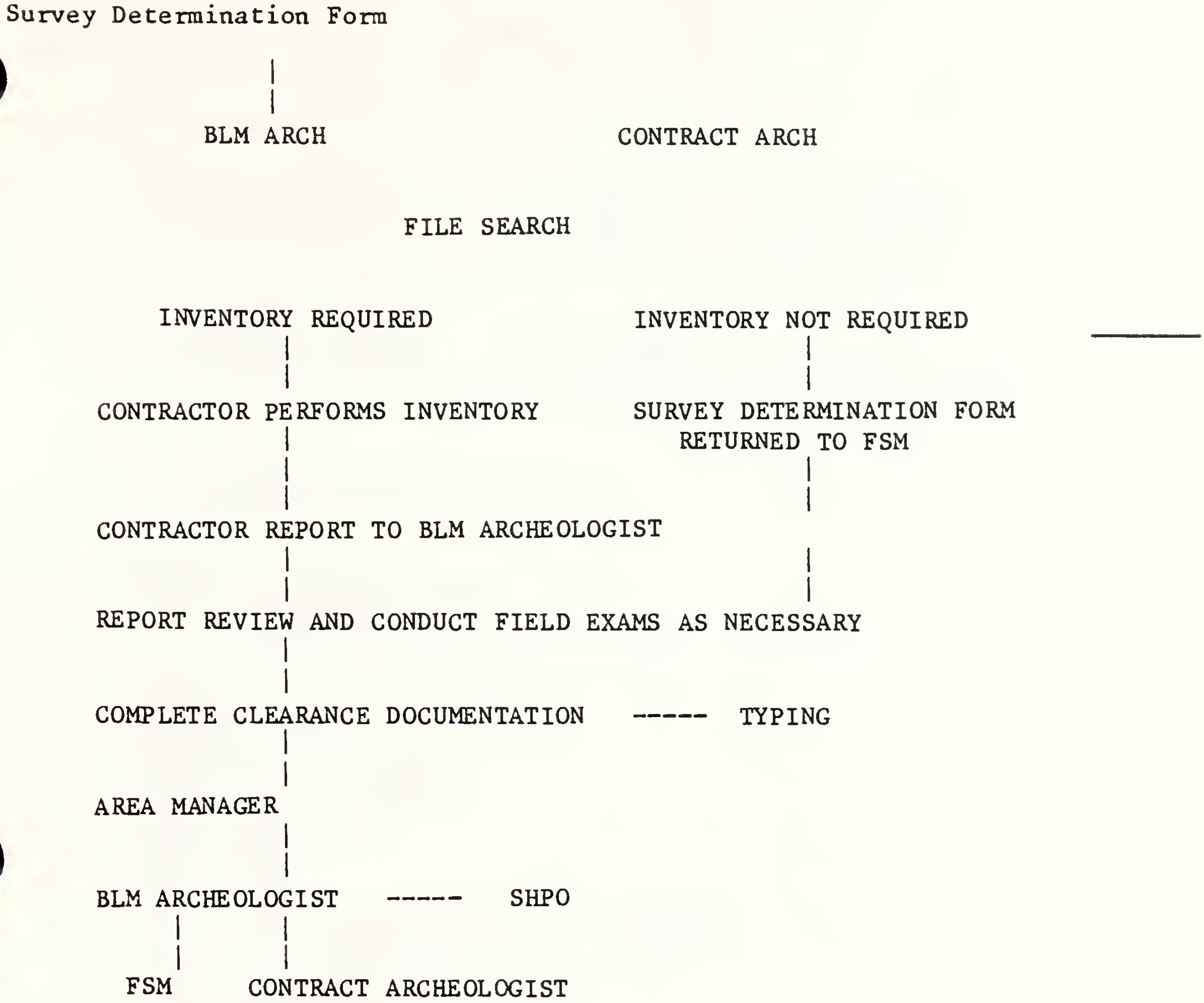
Information from conflict map is platted into topo surveys to show greater resolution of the problem area in selection step to the proposed action (APD).

* - MTP (Shows land/mineral estate (ownership_)) and more specifically, drawable checks ownership agent land status map (if available).

Navajo Indian Irrigation Project (NIIP)

Shows what land BLM withdrrew and turn over to NIIP. Need to double check where the proposed action is (SMA action).

SCHEMATIC OF ARCHEOLOGICAL EVENTS NEEDED FOR APD PROCESSING



Survey Determination Form

BLM ARCH

CONTRACT ARCH

FILE SEARCH

INVENTORY REQUIRED

INVENTORY NOT REQUIRED

CONTRACTOR PERFORMS INVENTORY

SURVEY DETERMINATION FORM
RETURNED TO FSM

CONTRACTOR REPORT TO BLM ARCHEOLOGIST

REPORT REVIEW AND CONDUCT FIELD EXAMS AS NECESSARY

COMPLETE CLEARANCE DOCUMENTATION ----- TYPING

AREA MANAGER

BLM ARCHEOLOGIST ----- SHPO

FSM

CONTRACT ARCHEOLOGIST

MAPS
REPORT GUIDELINES

BLM ARCHEOLOGIST CONTRACTOR

FILE SEARCH

KNOWN SITE DATA - (1) ARMS and (2) BLM FILES
KNOWN INVENTORY - (1) BLM FILES (MANUAL & MOSS), INVENTORY SPACE
(2) ARMS FILES (BIBLID. ONLY)

INVENTORY REQUIRED

NOT REQUIRED
NO SURVEY FORM COMPLETED BY FSM
SIGNED BY ARCHEOLOGIST

CONTRACTOR PERFORMS INVENTORY

FSM

- * AGENCY
- * REPORT REFERENCE NUMBER
    - BLM NUMBER
    - CONTRACTOR NUMBER
- * AUTHOR
- * REPORT DATE
- INVENTORY DATE
- RESULTS OF FILE SEARCH
- * WELL NAME - COMPANY
- * LEGAL DESCRIPTION
- * LAND STATUS
- TOPO SHEET
- * INVENTORIED AREA DIMENSIONS AND ACREAGE
- PROJECT AZREA DIMENSIONS AND ACREAGE
- ENVIRONMENTAL DATA
- * CULTURAL RESOURCES IDENTIFIED
- * RECOMMENDATIONS

REVIEWS REPORT AND CONDUCT FIELD EXAMS AS NECESSARY

DOCUMENTS -
WELL NAME
LEGAL DEXCRIPTIONS
RECOMMENDATIONS TO AREA MANAGER
CLEARANCE (UNCONDITIONAL))
CLEARANCE W/SPECIAL STIPS) DETERMINATION OF EFFECT

AREA MANAGER CONCURS WITH RECOMMENDATIONS AND RETURNS TO ARCHEOLOGIST

* DATE APPROVED

RECOMMENDATIONS/STIPULATIONS FROM CULTURAL RESOURCE TO FSM

INCORPORATES REC/STIP. INTO APD

REPORT AND COPY OF CLEARANCE MEMO TO SHPO

SHPO RETURNS MEM WITH CONCURRENCE

* DATE RECEIVED

DATA MANAGEMENT

ARMS/GIS/MOSS - SITE DATA FROM ARCHEOLOGICAL RECORDS MANAGEMENT FILES MAINTAINED BY STATE OF NEW MEXICO.
- INVENTORY DATA FROM CONTRACTOR AND IN-HOUSE FILES.
- ARMS FILES - SOME REPORT DATA BUT NOT INCORPORATED INTO MOSS YET.

MAP FILES
INVENTORY AND SITE LOCATION

REPORT INFORMATION IN DATA FILES
STARRED ITEMS

PROCESSES

NAME: Engineering **NUMBER:** 1.2.1

OBJECTIVES:

Provide technical expertise to ensure the diligent and safe development of oil and gas drilling operations.

POLICIES/PROCEDURES:

Review the 10-point drilling plan. Review lease rights and generate letters.

CONSTRAINTS:

CDM, CFRs, Onshore Order #1, State spacing and well location requirements.

EXCEPTION HANDLING:

PCI - (Proprietary Confidential Information)

ERROR HANDLING:

REMARKS:

(CDM) Conservation Division Manual
(CFR) Code of Federal Regulations
Onshore Order #1, - Guidelines and requirements for the APD
State and well spacing requirements - guidelines set up by the State of New Mexico (NMOCD) to properly locate a proposed well.

NAME: Well Tracking

DESCRIPTION:

Well tracking is a combined manual and automated process where any activities on a lease are identified. The responsible BLM office, usually a District Office or Resource Area, maintains a case file folder in which a hard copy of the applications is kept. All relevant reports, forms, or maps are kept in one folder. Other copies of the forms may be sent to the State Office or to MMS. In addition, lease activity is tracked on the AIRS where inspection and enforcement are logged. The partly automated "well tracking" will be analyzed in the operations analysis.

PROVIDES:

This connector provides Approval/Disapproval actions and lease information.

RECEIVES:

This connector receives Bond Information, Sundry Notices, and lease information.

REMARKS:

This entity is included in Level 7.

EXTERNAL ENTITIES

NAME: SMA

DESCRIPTION:

Surface Managing Agency--any agency with jurisdiction over the surface overlaying federally-owned minerals.

PROVIDES:

SMAs respond to BLM's request for consent to lease minerals underlying lands over which they have jurisdiction with either a denial or consent, including appropriate stipulations to be attached to the lease.

RECEIVES:

Requests from BLM for consent to lease and appropriate stipulations.

REMARKS:

BLM is considered to be the SMA for BLM-administered lands.

Form 3160-3 =	Type of work + Type of well + Name of Operator + Address of Operator + Location of Well + Lease Number + Indian, Allottee or Tribe Name + Unit Agreement Name + Farm or Lease Name + Well Number + Field or Pool, or Wildcat + Section, Township, Range, Meridian or Block and Subdivision or Area + County or Parish + State + Distance in miles and direction from nearest town or Post Office + Distance from proposed location to nearest property or lease line, ft. + Number of Acres in Lease + Number Acres Assigned to this Well + Distance from proposed location to nearest well, drilling, completed or applied for, on this lease, ft. + Proposed depth + Elevation + Approximate date work will start + Proposed casing and cementing program + Signature
Type of Work =	Applicant must indicate whether APD is to drill, deepen, or plug back.
Name of Operator	Name of entity proposing to drill.
Address of Operator =	Place where applicant received correspondence.
Location of Well =	Well location footages that are north or south and east or west of a section line.
Lease Designation and Serial No. =	Serial number assigned to the lease.
Indian, Allottee or Tribe Name =	Operator indicates if land is Indian, Allottee, or Tribal.
Unit Agreement Name =	Name of Contractual Agreement between BLM and entity.
Farm or Lease Name =	Name of Lease or Farm upon which the well is to be drilled.

Well Number = The number that the operator assigns to the well.

Field and Pool, or Wildcat = Field and pool indicates if the proposed well is within a KGS area. Wildcat indicates proposed well is outside KGS area.

Sec., T., R., M. or Blk and Survey or Area = Legal Land Description

County or Parish = County or Parish name where well is to be drilled.

State = Name of State where well is to be drilled.

Distance from proposed Location to Nearest Property or Lease Line, Ft. = "Element is this actual definition."

Distance in miles and Direction from Nearest Town or P.O. = "Element is this actual definition."

Distance from proposed location to nearest well, drilling, completed or applied for on this lease, ft. = "Element is this actual definition."

Review = APD is reviewed to determine that all elements have been included in the package.

Verify = Validate APD has correct lease number, lessee, lease information, adequate bonding and operating rights.

Abstract = Pull additional data to include lease information, lessee, adequate bonding and operating rights.

Compile = APD (reviewed, verified, abstracted)
+ abstracted information
+ well file
+ well sign
+ check sheet

Well File = Folder
+ Label
+ well sign
+ check sheet

Label = Footages
+ Section
+ Township
+ Range
+ Well Name
+ Well Number
+ Lease Number
+ Operator Name

Summary Decision Matrix of Farmington Options

	Description of Alternative	Cost (K$)	Operational Problems	Training Problems	Fullfills Demo Objectives
1	Prime Level B Computer and original Redline peripherals.	438-468	High	High	no
2	Prime Level D hooked up to Level A in Santa Fe.	100-150	Medium	High	no
3	Three Level D Computers as "interim" machines.	?	Medium	High	no
4	Comparable office-environment HP Level B with reduced original Redline perhipherals.	316-324	Medium	Medium	yes

Brief Explanation of Evaluated Alternatives:

Alternative 1 includes 561K$ for hardware/software for Red and Blue lines along with an estimated 50-75K$ for a new computer room to house the level B. An option exists to utilize an existing portable building. It requires GSA approval. Operational problems are high because of the expertise needed to run a mainframe environment. Training problems are high since no one has had any Prime training and the systems software level needed requires expertise in both Primos and Primex. Objectives are not met because the demo states a live environment which precludes computer rooms in Area Offices unless absolutely necessary.

Alternative 2 costs 100-150 for capital cost and 3 months of maintenance. Operational problems are medium since level D's are office-environment computers, but systems software expertise required is the same as Alternative 1. Objectives are not met since this option places control and updates in a centralized Santa Fe site, and configuration which does not meet user requirements.

Alternative 3 costs #K$ for capital and 3 months of maintenance. Operational problems and training problems are the same as alternative 2 and the alternative fails to meet objectives because the chaining of three level D machines still does not equal the performance or the capacity of a level B machine which is required to test the entire Area Office's data base or records, resource, and coordinate data.

Alternative 4 costs 282K$ (blueline, increment/future technology) & 66-74K (redline, existing technology) for capitall. Operational problems are medium and training problems are medium since only UNIX must be learned. Demo objectives can be met since the proposed HP UNIX system exceeds the level B in both speed and memory expandibilty. Also, since the HP system has ANSI standard Fortran 77, there should be little if any compatibilty problems in transfering files or programs from Prime running under UNIX to the HP.

FARMINGTON DEMONSTRATION PROJECT

ALL COSTS IN THOUSANDS OF DOLLARS (K$)

	A. Prime level B Air-conditioned	B. HP Comparable level B Office-environment	C. Prime level C Office-environment
1. H/W,S/W Telecom purchase	438-468K$	316K$	350K$
2. Modification for new bldg	50K$ additional 500 sq.ft, redesign 30K$ Air-cont. + halogen	Redesign of floor space No increase in floor space	Redesign of floor space No increase in floor space
3. Cost of yearly maintenance	55K$ peripherals 7K$ software 10K$ physical environment 20K$ supplies	30K$ H/W, Operating System 7K$ software no increase 20K$ supplies	30K$ H/W, Operating System 7K$ software no increase 20K$ supplies
4. New FRA personnel needed	35K$ Systems Administrator 20K$ Systems Operator 25K$ Initial startup (contract) 20K$ Contract programming or Santa Fe help--1st yr. only	35K$ Systems Administrator 20K$ Systems Operator 25K$ Initial startup (contract) 20K$ Contract programming or TGS--1st yr. only	35K$ Systems Administrator 20K$ Systems Operator 25K$ Initial startup (contract) 20K$ Contract programming or TGS--1st yr. only
5. Five-year Purchase + O&M	1,170K$	843K$	881K$ ±
6. Training and operations cost	20K$ users 5K$ systems analyst 1st yr --Santa Fe 75% Denver 25%	20K$ users 3K$ systems analyst 1st yr --Santa Fe 40% Denver 40%	20K$ users 3K$ systems analyst 1st yr --Santa Fe 40% Denver 40%
7. 3rd Party S/W availability	medium	high	medium
8. FY Costs			
FY86	568K$	336K$	380K$
FY87	162K$	171K$	141K$ ±
FY88	147K$	112K$	120K$ ±
FY89	147K$	112K$	120K$ ±
FY90	147K$	112K$	120K$ ±
9. Totals	1,198-1,228K$	843K$	881K$ ±

* Note: no data collection or MOSS conversion costs included

EXISTING TECHNOLOGY

RED LINE CROSS-OVERS

DATA:	$ 65,000	(Coordinates & Resource Data Digitizing)
	$ 10,000	
	$ 10,000	
Subtotal	$ 85,000	

H/W (2 graphic intellegent work stations)
(Supplies)
(Plotter)

	$ 40,000
	$ 10,000
	$ 16,000
Subtotal	$ 66,000
	$151,000

NOTES: DBMS for M-600 (?)

Prime level B Hardware,Software, Telecom

Hardware:

(2) Base D System		$ 60,000
Base B System		$ 86,000
Tape		$ 28,000
1.2 G B		$ 30,000
.6 G B		$ 15,000
4 M B		$ 5,000
A/W Term.		$ 11,000
	Subtotal	$256,000

Power Conditioner		$ 12,000
Office Furniture & Misc.		$ 5,000
Telecommunication		$ 5,000
Software (DBMS - Level B and Ds)		$ 70,000
	Subtotal	$ 92,000

DBMS:

Redline:

3 graphic workstations		$ 45,000
2 platters		$ 32,000
1 digitizing tablets		$ 8,000
3 A/W terminals & printers		$ 8,000
2 disc packs		$ 1,800
1 terminal controller		$ 1,300
misc. supplies		$ 5,000

Telecommunication

2 mux, modems, and com. package		$ 20,000
	Prime level B Subtotal	$120,000

HP Comparable level B Hardware, Software, Telecom

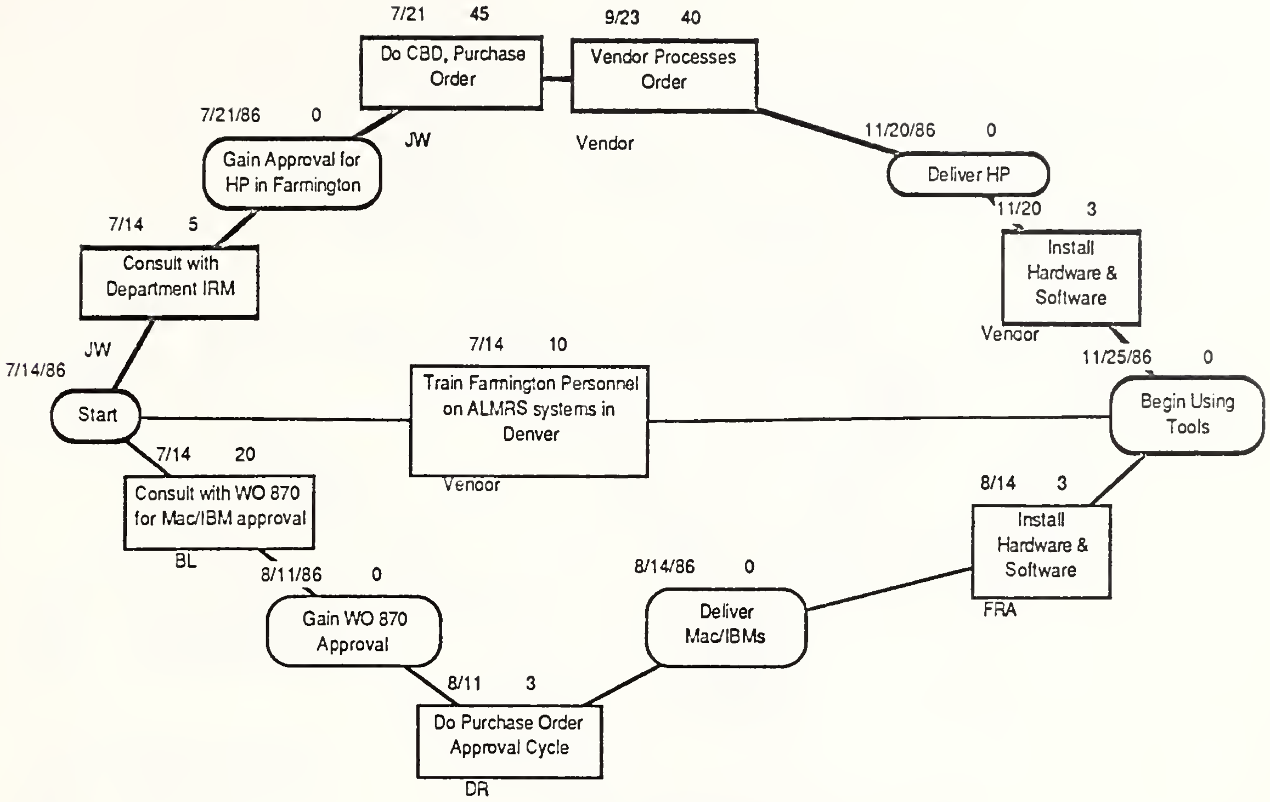
Software		
MOSS	0	
Relational DBMS package		
Site License	12500	
Yearly maintenance	3125	
Sub total	15625	
Graphics Package		
Site License	16400	
Yearly maintenance	4100	
Subtotal	20500	
Total Software	36125	
Hardware: HP 9000/560(1-64 users)		
CPU 8MB memory, Unix O/S	35000	Rated at 3.6 MIPS
Mass Storage		
9-track 1600 bpi tape drive	10000	
132MB hard disk + cartridge	15000	Systems disk
(3) 571MB hard disk	5100	Equals 1.7 GB of hard disk
cartridge system backup box	10000	Holds 8 cartridges in a "juke box" 67MB/cartdrige
Peripherals		
Small plotter	3000	Used as "red line" item.
Small digitizer	1000	Used as "red line" item.
3 1/2" floppy drive	1000	
19" hi-res color display	15000	Used as one of three"red line"
	graphics terminals	
(2) dumb terminals	2000	
(2) 8-channel mux's	4000	
(2) disk interface boards	2000	
Laserjet + printer	3000	
Subtotal	152000	
Yearly maintenance	30400	
Total hardware	182400	
Intelligent Terminals		
(2) Macs,(1) IBM AT	5880	
(2) 20 MB Hard Drives	2870	
(1) 30 MB Hard RAM Drive	1175	
External Disk Drive	395	
(4) Appletalk	150	
Laser Printer	4600	
Plus Upgrade Kit + scanner	900	
Software	875	
Total Intelligent Terminals	16845	

(4) 9600 baud dial-up modem	22000
(4) Power conditioners	3500
Supplies	5000
Computer desks, stands,hutches	20000
HP "level B" Total	282370

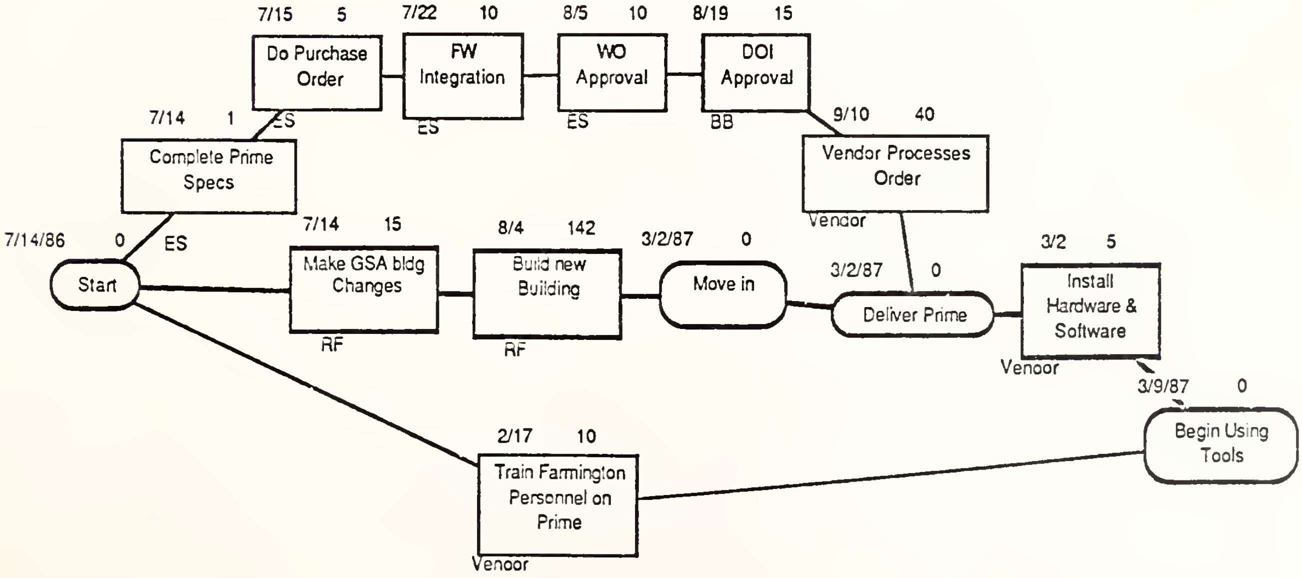
Prime level C Office-environment Costs

Prime 2655	
CPU w/ 8MB, Primos	
(2) 315 MB Disk, 1600 bpi streaming tape	104,580
Primix	850
(1) 630 MB Disk & Controller	15,117
(1) 630 MB Disk	14,500
60 MB Cartridge tape	3,549
Subtotal	138,596
Conversion of HASP/GII	15,000
Total	153,596

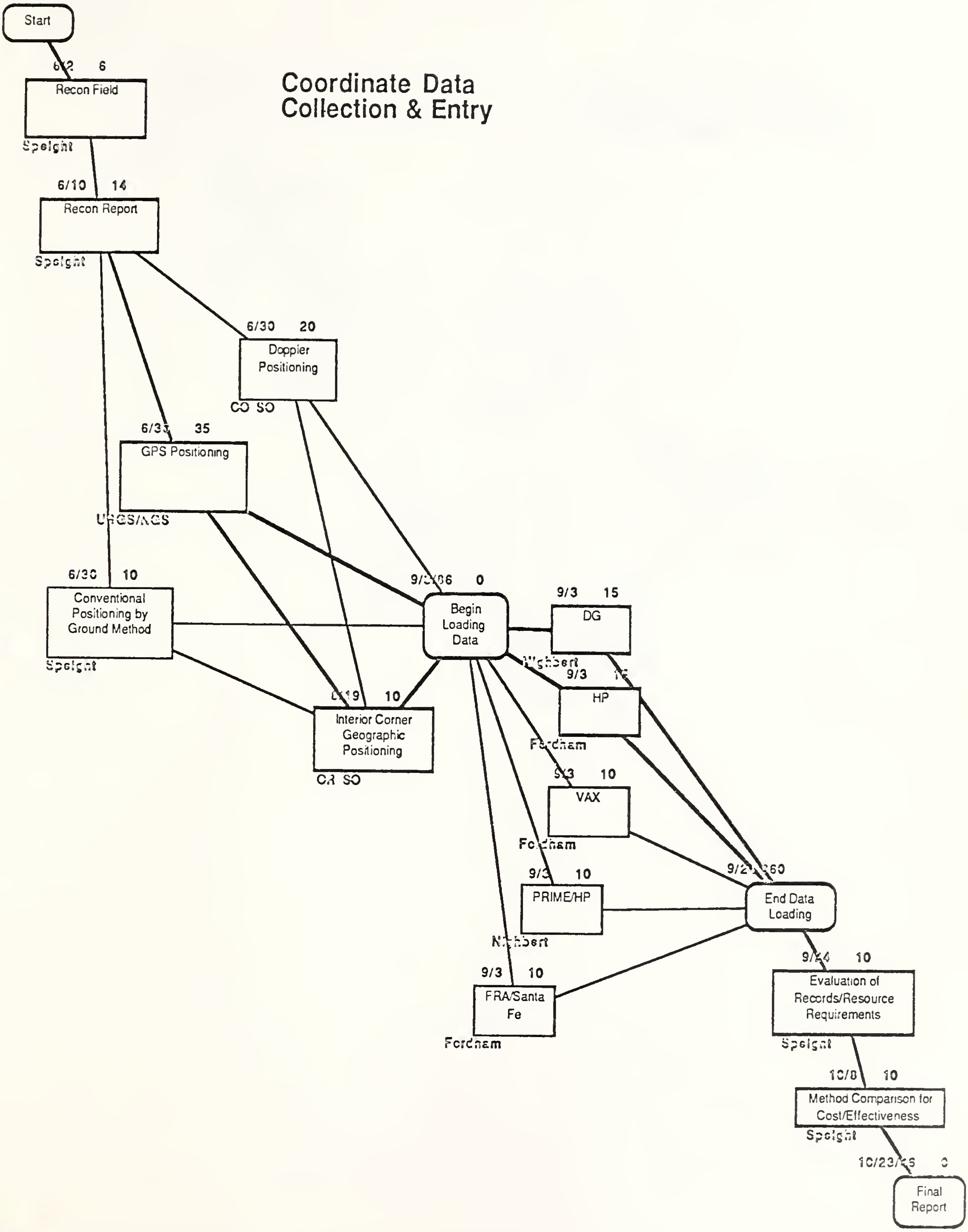
HP ACQUISTION CPM



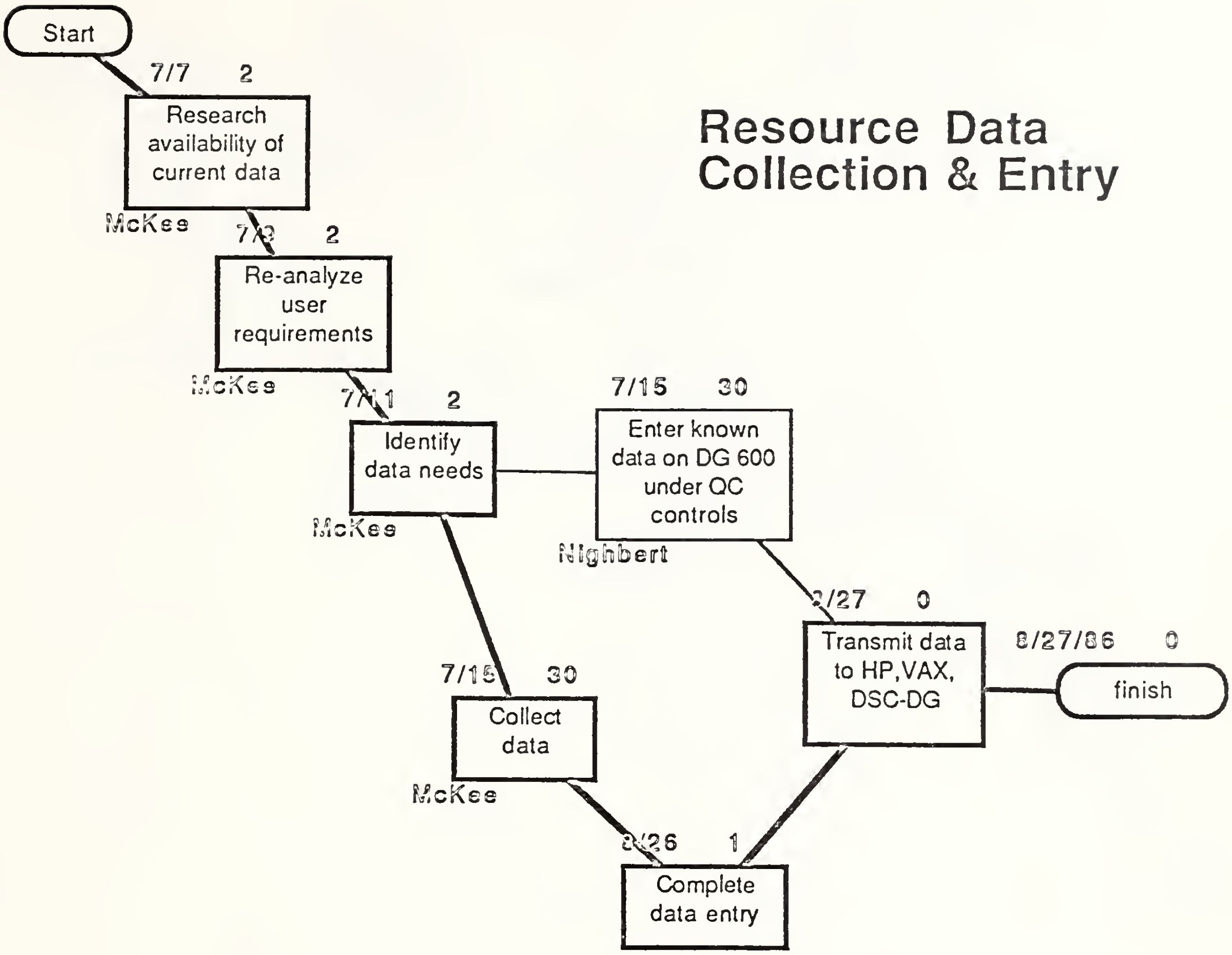
PRIME ACQUISITION CPM



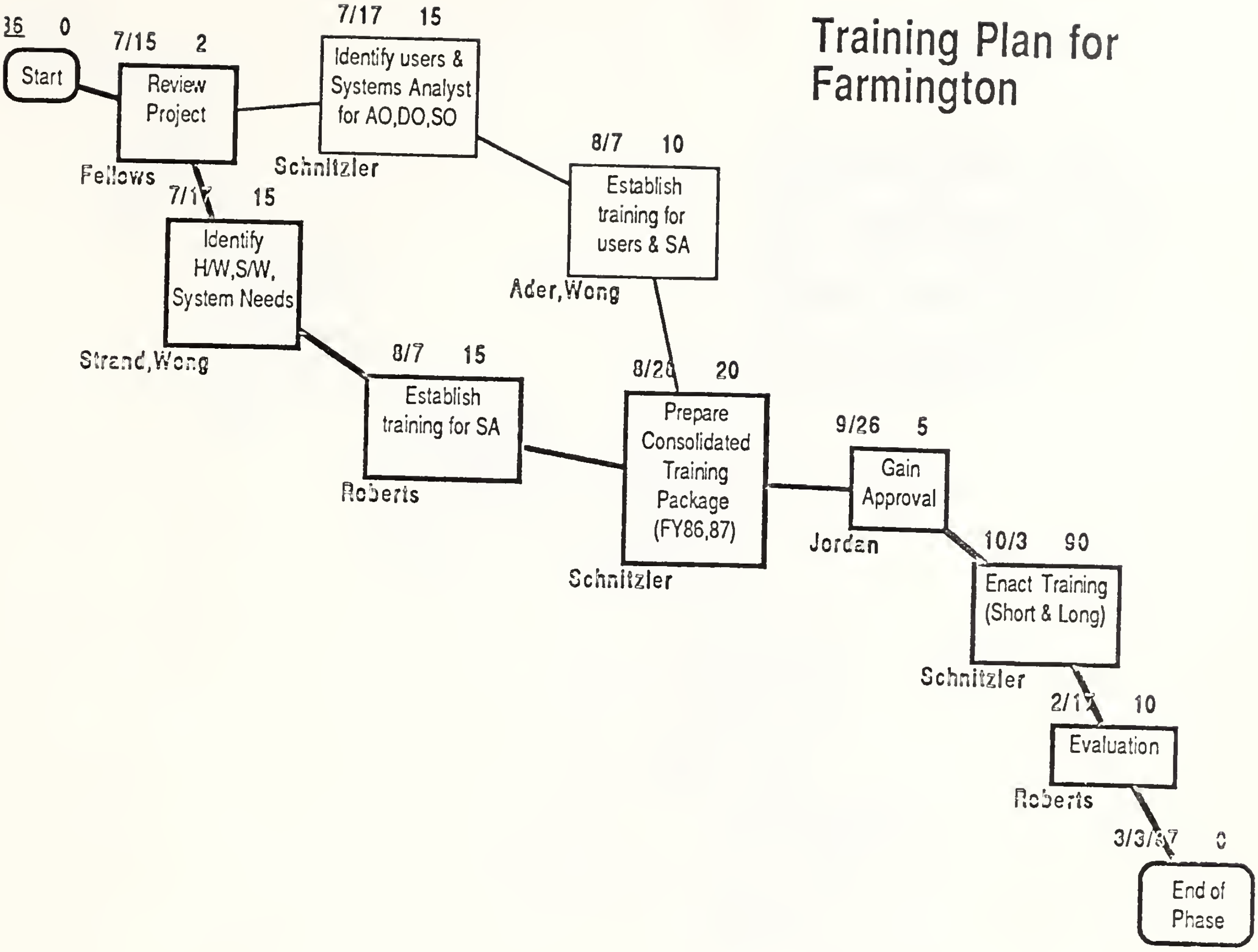
Coordinate Data Collection & Entry



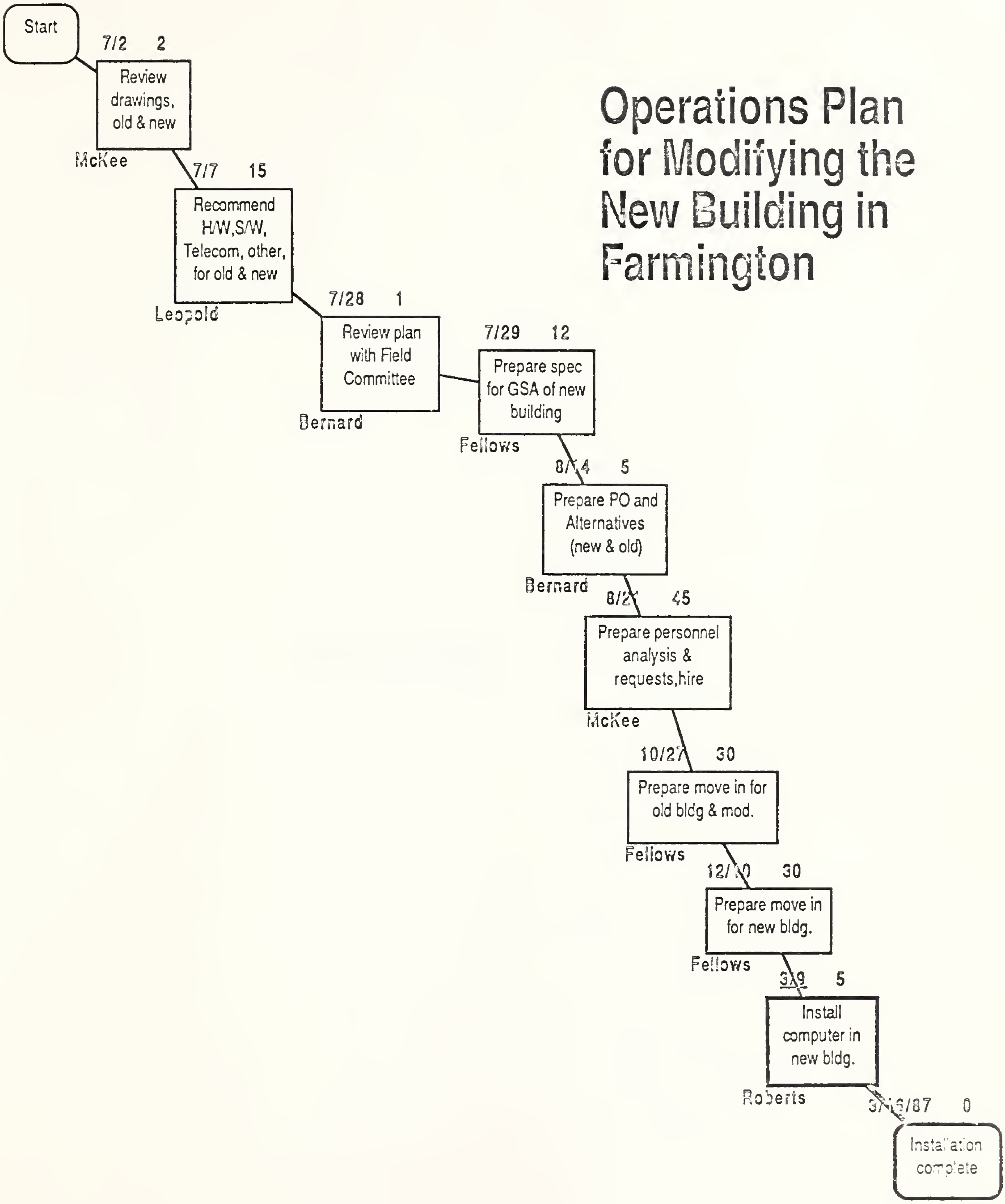
Resource Data Collection & Entry


Start
7/7 2
Research availability of current data
McKee
7/9 2
Re-analyze user requirements
McKee
7/11 2
Identify data needs
McKee
7/15 30
Enter known data on DG 600 under QC controls
Nighbert
7/15 30
Collect data
McKee
8/26 1
Complete data entry
8/27 0
Transmit data to HP,VAX, DSC-DG
8/27/86 0
finish

Training Plan for Farmington


36 0
Start
7/15 2
Review Project
Fellows
7/17 15
Identify users & Systems Analyst for AO,DO,SO
Schnitzler
7/17 15
Identify H/W,S/W, System Needs
Strand,Wong
8/7 10
Establish training for users & SA
Ader,Wong
8/7 15
Establish training for SA
Roberts
8/26 20
Prepare Consolidated Training Package (FY86,87)
Schnitzler
9/26 5
Gain Approval
Jordan
10/3 90
Enact Training (Short & Long)
Schnitzler
2/17 10
Evaluation
Roberts
3/3/87 0
End of Phase

Operations Plan for Modifying the New Building in Farmington


Start
7/2 2
Review drawings, old & new
McKee
7/7 15
Recommend H/W,S/W, Telecom, other, for old & new
Leopold
7/28 1
Review plan with Field Committee
Bernard
7/29 12
Prepare spec for GSA of new building
Fellows
8/14 5
Prepare PO and Alternatives (new & old)
Bernard
8/21 45
Prepare personnel analysis & requests,hire
McKee
10/27 30
Prepare move in for old bldg & mod.
Fellows
12/10 30
Prepare move in for new bldg.
Fellows
3/9 5
Install computer in new bldg.
Roberts
3/16/87 0
Installation complete

RESERVED

RESERVED

RESERVED

RESERVED

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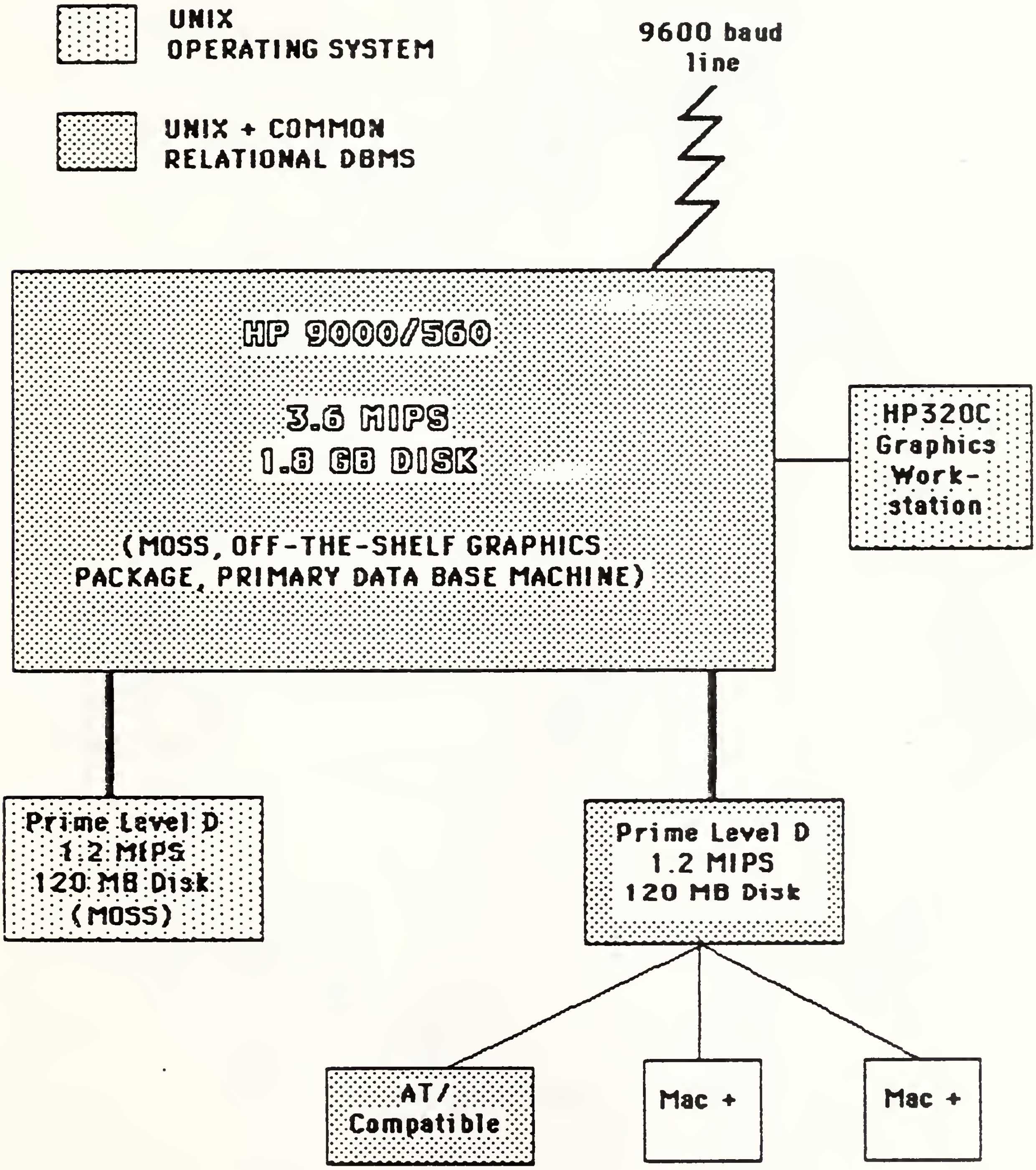
RESERVED

RESERVED

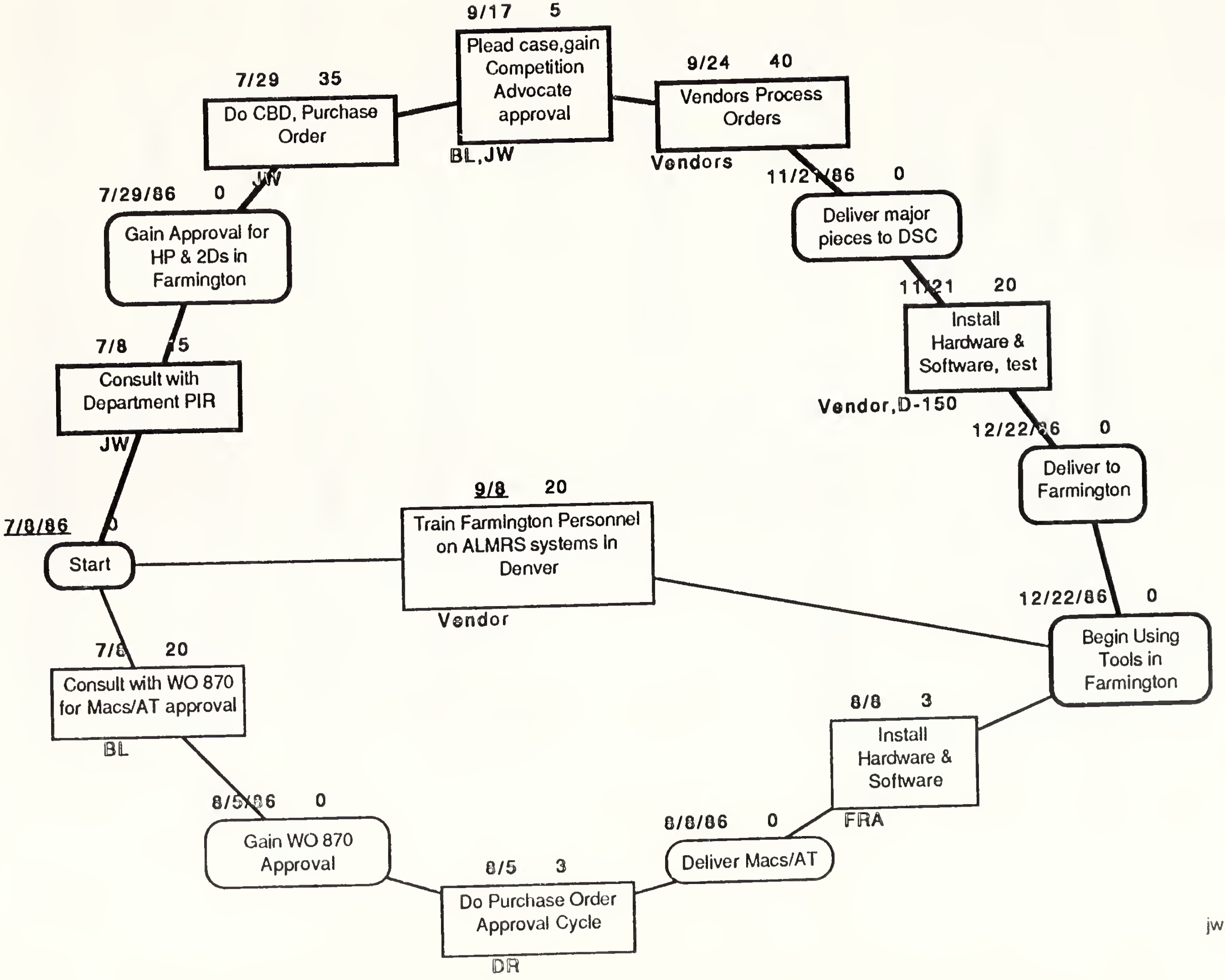
RESERVED

RESERVED

CONFIGURATION DIAGRAM FOR THE FARMINGTON DEMONSTRATION PROJECT



Updated HP & 2Ds Acquisition CPM


7/8/86 0
Start
7/8 5
Consult with Department PIR
JW
7/29/86 0
Gain Approval for HP & 2Ds in Farmington
7/29 35
Do CBD, Purchase Order
JW
9/17 5
Plead case,gain Competition Advocate approval
BL,JW
9/24 40
Vendors Process Orders
Vendors
11/21/86 0
Deliver major pieces to DSC
11/21 20
Install Hardware & Software, test
Vendor,D-150
12/22/86 0
Deliver to Farmington
12/22/86 0
Begin Using Tools in Farmington
9/8 20
Train Farmington Personnel on ALMRS systems In Denver
Vendor
7/8 20
Consult with WO 870 for Macs/AT approval
BL
8/5/86 0
Gain WO 870 Approval
8/5 3
Do Purchase Order Approval Cycle
DR
8/8/86 0
Deliver Macs/AT
8/8 3
Install Hardware & Software
FRA

jw. 7-15-86 (AcqCPM)

IMPLEMENT CAPABILITIES

(at the Service Center)

1. DMBS Capability:

1.1 Identify, select and procure DBMS software for Prime Level D at the Service Center (SC); for HP and Prime Level D in the Farmington Resource Area (FRA); for Prime Level A in the New Mexico State Office (NMSO).

1.2 Develop and test initial linkage between DBMS and MOSS.

1..3

Complete linkage between DMBS and MOSS.

2. GIS Softfware Conversion:

2.1 Complete conversion of ADS, MOSS, MAPS, COS to Fortran 77.

2.2 Convert GIS software to UNIX environment for HP and Prime.

2.3 Convert AOS/CLI macro procedures for APD to Fortran 77 or UNIX shell commands.

2.4 Define Fortran 77 standards compliance requirements.

2.5 Define compliance requirements for UNIX standard.

2.6 Define compliance requirements for graphics interface support standard, i.e., GKS.

2.7 Convert GIS software to use standard graphics interface.

3. Data Exchange:

3.1 Identify data base exchange requirements with USGS and other agencies.

3.2 Develop, test and evaluate Federal Graphic Exchange Format (FGEF) standard.

4. Data Base Integration:

4.1 Develop and test capability to transfer merged LLD, STATUS and Case Recordation data to ADS and MOSS,

4.3 Develop capability to transfer GCDB data, i.e., output of PCCS;, to ADS and MOSS.

4.3 Develop capability to use real number data types for coordinate storage in GIS data files.

5. Integration of HP and Prime Computer Systems:

5.1 Install Prime Level D at the SC.

5.2 Establish high speed data communication line between HP and Prime Level D.

5.3 Test and evaluate HP-UX and Primix file transfer and virtual terminal capabilities.

5.4 Test and evaluate transfer of data between DBMS software on each system.

5.5 Transfer and implement integration method at FRA for HP and Prime Level D systems.

5.6 Establish link between Prime Level A and Prime Level D at the SC.

5.7 Establish data base transfer and access mechanism between Prime Level A and Level D at the SC.

5.8 Transfer capability to link NMSO Prime Level A with FRA Prime Level D.

6. PCCS Software:

6.1 Convert PCCS to Fortran 77 on HP

6.2 Convert PCCS to Fortran 77 on Prime.

7. APD Development:

7.1 Develop and test 4 GL?DBMS capabilities for APD.

7.2 Revise and test GIS/macro capabilities for APD.

7.3 Enhance slope processing capabilities

7.4 Develop and test well location capability.

Decision Document for Land Information System
and Farmington Demonstration

1. The Bureau of Land Management endorses and supports the Farmington Demonstration Project as a method to achieve the following objectives:

   - To demonstrate and evaluate the access and use of records coordinates, and resources data to meet identified user needs in the Farmington Resource Area.

   - To test and evaluate alternative delivery systems (software and hardware) to meet those identified user needs.

   - To use the results of these evaluations to Aid in developing the specifications for the Bureau's Land Information System (LIS) RFP.

2. The action plan currently being prepared by the work group that met in Santa Fe, March 24-28, 1986, shall be finalized to include all the actions, responsibilities, costs, and support necessary to implement the Farmington Demonstration Project. The Action Plan shall be completed in coordination with USGS within thirty days and approved by the Farmington Resource Area Manager, Albuquerque District Manager, New Mexico State Director, Service Center Director, and the Bureau Director.

3. IT IS ~~not~~ recommended that The Bureau of Land Management [illegible] continue to move ~~toward's building~~ a Land Information System that provides a vehicle to integrate all automated systems. Additional policy and action steps shall be pursued to build the framework necessary to implement the LIS Bureauwide.

Endorsement of Principles

Recommendations

____

____

____

____

Concurrence

NMSO, State Director

Service Center Director

Approval

____

Director, BLM

TO: CHARLIE GRYMES (WO 105) 343-4786

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
DENVER SERVICE CENTER
DENVER FEDERAL CENTER, BUILDING 50
P.O BOX 25047
DENVER, COLORADO 80225-0047

IN REPLY
REFER TO:

1268 (D-150)

MAY 29 1986

Memorandum

To: Chairman, Field Committee

From: Service Center Director

Subject: Confirmation of Field Committee Discussions on Land Information System (LIS)

At the May meeting of the Field Committee in Boise, we reached agreement on several key issues and discussed others involving automation in BLM. This memo is to document some of the more critical items, in advance of the minutes, so we may proceed expeditiously:

1. The Field Committee created a LIS Subcommittee, which will consist of the Associate State Directors from WY, MT, CO, OR, NV, and NM. This subcommittee will provide guidance to the Service Center and the Washington Office on LIS development, the Farmington Demonstration Project, the Modernization Study, and other major automation concerns.

The LIS Subcommittee will represent the full Field Committee. While all Field Committee members will be welcome to attend the meetings, the subcommittee members have made a special commitment of their time and attention.

2. The Field Committee approved the general LIS approach, as described in Enclosure 1 (which was distributed informally by Duane Sonnenburg prior to the Boise meeting). The Farmington Demonstration Project plan will be developed after further clarification of hardware/software/telecommunication options, and it will reflect the LIS concept.

The LIS Subcommittee will meet after the award of the Fish and Wildlife contract, and will review the options for hardware, software, resource investments in the Farmington Demonstration Project, and the overall BLM approach to interim systems after implementation of the Farmington Demonstration Project.

3. The Field Committee was advised of efforts to develop a LIS infrastructure in BLM. The ALMRS coordinators, at their last meeting, agreed to initiate discussions in their State Offices. This could lead to development of a LIS infrastructure in the field. In the WO, the need was identified to formalize an infrastructure and to improve communication protocols between key individuals/offices, with possible minor organizational realignments to facilitate that communication.

4. The Field Committee recognized the need to ensure the Modernization Study answers the right questions so it will lead directly to the necessary procurement. It was noted that defining the functional requirements in the Geographic Information System (GIS) area will have to be done "carefully" to ensure the right level of detail and to avoid overwhelming complexity, and that the ALMRS-GIS requirements will have to be melded into the Modernization Study.

There were a number of additional significant items covered at the meeting but not elaborated upon in this memo, such as standardization of operating systems and use of the data element dictionary. We anticipate the Field Committee minutes will address these items. The four items highlighted in this memo are singled out to assist the various BLM offices dealing with them to be advised quickly of the discussions and decisions at the Field Committee meeting.

Fish and Wildlife Service Contract Update

The Fish and Wildlife Service (FWS) is the lead agency on the Department of Interior (DOI) procurement for GIS computers. The contract award was made June 5, 1986 to Prime Computers, Inc.

Prime is subcontracting to Environmental Systems Research Institute (ESRI) for the conversion of the MOSS family GIS software. ESRI is the vendor of the ARC/INFO system in use by the U.S. Geological Survey (USGS) Water Research Division and others. This conversion, as presently specified, will be to the PRIMOS operating system using Fortran 77.

The contract provides four levels of computer systems to allow flexibility in purchasing and sizing a configuration to match the requirements at a specific location:

Level	Price Base/Ave	Users	Memory Min/Max	Disk Min/Max
A	$115K/$250K	30 to 50+	8MB/16MB	0.5GB/16GB
B	$ 87K/$180K	20 to 30	4MB/12MB	0.5GB/ 8GB
C	$ 58K/$ 90K	10 to 20	4MB/ 8MB	0.3GB/ 2GB
D	$ 26K/$ 35K	up to 10	2MB/ 8MB	0.1GB/0.2GB

Optional quantities have been specified for each of these levels and by Bureau location.

To purchase a system from the contract, a justification and requisition should be sent to the Service Center (SC). A purchase order will be generated by BLM contracting and forwarded to the Washington Office Information Resources Management (WO-770) with the justification. Once BLM approval is obtained, the request is sent to DOI/PIR for review and approval. The DOI will send the approved request to FWS contracting who will then issue the purchase order to Prime.

Requests for FY 86 procurements have been reviewed by WO-770 and formally sent to DOI/PIR for Montana, New Mexico, Oregon, Service Center, Utah and Wyoming.

The FWS has requested BLM to reimburse them for $150,000 of the software conversion costs. BLM has requested FWS to examine the feasiblity of negotiating a revised statement of work with Prime (and ESRI) to include: (1) conversion of the most recent GIS software versions; (2) convert to a standard UNIX based operating system (i.e., PRIMIX) rather than vendor specific operating system (i.e., PRIMOS); and (3) interface with a standard graphics support package (i.e., GKS). These issues have not been resolved as of yet. The current versions of the GIS software have been sent to ESRI for review. ESRI estimates complete conversion delayed until February 1987, with no cost increase. This is a preliminary estimate. The present contract specifies conversion of the older software by December 5, 1986, and a contract modification will have to be negotiated in the near future.

BLM Library
D-553A, Building 50
Denver Federal Center
P. O. Box 25047
Denver, CO 80225-0047

BLM Library
Denver, Building 50
Denver Federal Center
P. O. Box 25047
Denver, CO 80225-0047

ALMRS-GIS
R'S CARD 11-R37

:.2

ration
mgmt.

	OFFICE	DATE RETURNED
nSC	303 591 2000	FEB 17 '88
CGG	303/725-2777	MAR 7 '88
	777 5331	4/8/88

(Continued on reverse)